Publication No. 3H9266
12OCT01
Supersedes 3H9266
16FEB01

HEALTH IMAGING

DIAGNOSTICS
for the
Kodak X-Omat MULTILOADER 7000
Service Code: 3444

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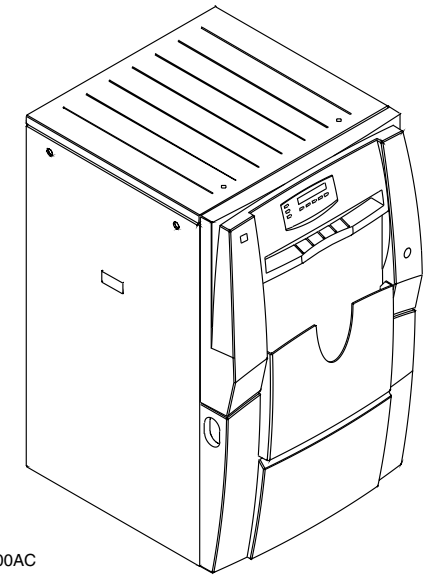
Important
Qualified service personnel must repair this equipment.



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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

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Section 1: SERVICE SOFTWARE

Hardware Requirements for the LAPTOP COMPUTER

Caution

Use special care when operating or transporting a LAPTOP COMPUTER:

- Avoid mechanical shocks.
- Do not transport a LAPTOP COMPUTER with a DISKETTE in the DISK DRIVE, or a CD-ROM in the CD-ROM DRIVE. This could cause damage to the DISKETTE, CD-ROM or the DRIVES.
- Store the “SERVICE SOFTWARE” and OPERATING SOFTWARE DISKETTES, and CD-ROMS in a safe place. You might need to load the software again.
- Do not expose the DISKETTE or CD-ROM to:
  - heat
  - magnetic field

To service the MULTILOADER 7000, you need a LAPTOP COMPUTER with the following minimum requirements:

- IBM fully compatible
- 3.5 in. DISKETTE DRIVE 1.44 MB or CD-ROM DRIVE
- 32 MB RAM
- 400 MB HARD DISK
- 333 MHz PROCESSOR SPEED
- SERIAL PORT RS-232-C
- AC ADAPTER

In addition, you need DATA CABLE TL-4391.

Software Requirements for the LAPTOP COMPUTER

One of the following operating systems is recommended:

- *Windows 98*
- *Windows 2000*

The complete MS-DOS system must be installed.

Installing the SERVICE SOFTWARE on the LAPTOP COMPUTER

Important

- This procedure installs the new version of software on the HARD DRIVE of the LAPTOP COMPUTER.
- The new version deletes the old version of SERVICE SOFTWARE on the HARD DRIVE of the LAPTOP COMPUTER.
- The configuration of the COMMUNICATIONS PORT on the LAPTOP COMPUTER must be COM PORT 1.

From a CD-ROM

Important

Close any applications that are open on the LAPTOP COMPUTER before doing this installation.

[1] Insert the "OPERATING and SERVICE SOFTWARE for the X-OMAT Multi/Miniloaders" CD into the CD-ROM DRIVE.

[2] Open *Windows Explorer.*

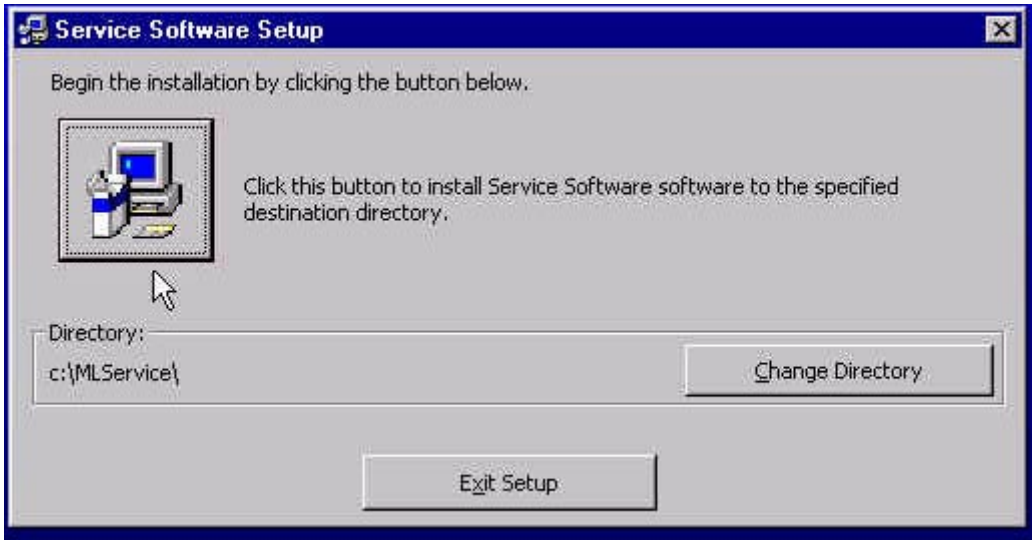
[3] Select "CD Drive."

[4] Double-click "install.bat".

[5] Type: **A** for "A XML7000/XML300/XML300Plus Service Software for Windows Version X.XX."

[6] Is an application open?

Yes	No
a. Select **Exit Setup.** b. Use the instructions on the screen.	Click [OK].


Service Software Setup
Begin the installation by clicking the button below.
Click this button to install Service Software software to the specified destination directory.
Directory:
c:\MLService\
Change Directory
Exit Setup

[7] Click the icon to begin the installation of the SERVICE SOFTWARE.

Note

"ML Service setup was completed successfully" appears on the screen.

[8] Click [OK].

[9] Press any key to continue.

[10] Click the "Create" icon to make a shortcut on your LAPTOP COMPUTER.

[11] Click [Finish Setup].

[12] Press:

- [Enter]
- [Enter]

[13] Type **Q** for “Quit Install Manager”.

[14] Close all windows.

From a FLOPPY DISK

[1] Insert the “SERVICE SOFTWARE” DISK 1 into DRIVE A.

[2] Select **Start>Run.**

[3] In the “Run” window:

(a) Type: **a:\install**.

(b) Click [OK].

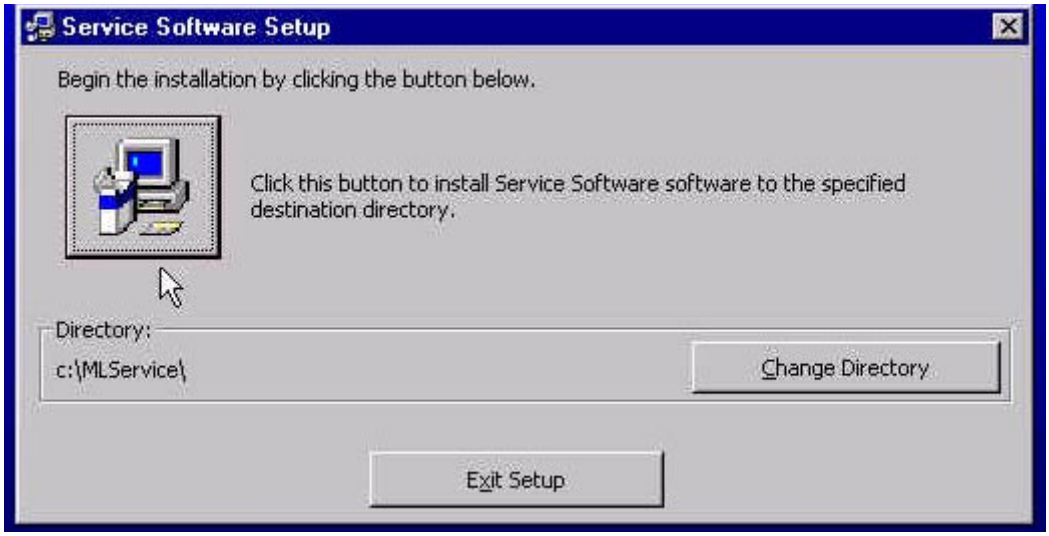
[4] Insert:

- “SERVICE SOFTWARE” DISK 2 into DRIVE A
- “SERVICE SOFTWARE” DISK 1 and 2 into DRIVE A again

[5] Click [OK].

[6] Is an application open?

Yes	No
a. Select **Exit Setup.** b. Use the instructions on the screen.	Click [OK].


Service Software Setup
Begin the installation by clicking the button below.
Click this button to install Service Software software to the specified destination directory.
Directory:
c:\MLService\
Change Directory
Exit Setup

[7] Click the icon to begin the installation of the SERVICE SOFTWARE.

Note

“ML Service setup was completed successfully” appears on the screen.

[8] Click [OK].

Note

Keep the SERVICE SOFTWARE DISK 2 in DRIVE A.

[9] Press any key to continue.

[10] Use the instructions on the screen.

[11] When the installation is complete, close all windows.

Starting the SERVICE SOFTWARE

[1] Energize the MULTILOADER 7000.

[2] Connect the LAPTOP COMPUTER to the MULTILOADER 7000. Use DATA CABLE TL-4391.

[3] Energize the LAPTOP COMPUTER.

[4] Select **Start>Programs>ML Service**.

Installing the OPERATING SOFTWARE on the LAPTOP COMPUTER

Important

- This procedure installs the new version of the OPERATING SOFTWARE, on the HARD DRIVE of the LAPTOP COMPUTER, in the **C:\MLService\Download** directory.
- The new version deletes the old version of OPERATING SOFTWARE on the HARD DRIVE of the LAPTOP COMPUTER.

From a CD-ROM

[1] Insert the “OPERATING and SERVICE SOFTWARE for the X-OMAT Multi/Miniloaders” CD into the CD-ROM DRIVE.

[2] Open *Windows Explorer.*

[3] Select “CD Drive”.

[4] Double-click “install.bat”

[5] Type: **B** for “B XML7000 Operating Software Version X.XX”.

[6] Use the instructions on the screen.

Note

After the OPERATING SOFTWARE downloads successfully, an information screen displays to explain the new components of the software.

[7] Type: **Q** for “Quit Install Manager”.

[8] Close all windows.

From a FLOPPY DISK

[1] Insert the “OPERATING SOFTWARE” DISK into DRIVE A.

[2] Select **Start>Run.**

[3] In the “Run” window:

(a) Type: **a:\install**.

(b) Click [OK].

[4] When the installation is complete, close the window.

Downloading the OPERATING SOFTWARE to the MULTILOADER 7000

Important

- The new version of the OPERATING & LANGUAGE SOFTWARE is for all new MULTILOADER 7000 systems.
- This procedure upgrades the MULTILOADER 7000 when a new version of the OPERATING SOFTWARE is necessary.
- The new software version deletes the old version of OPERATING SOFTWARE in the MULTILOADER 7000.

[1] Select **Start>Programs>ML Service>Service Multiloader**.

[2] On the “Unit Data” screen, select “Continue.”

[3] Click [Yes] to upgrade “History Files”.

[4] Click [Installation]**.** The “Software Download” menu displays the following directories:

- “DOWNLOAD SYSTEM SOFTWARE”
- “DOWNLOAD CASSETTE SOFTWARE”
- “DOWNLOAD MAGAZINE SOFTWARE”
- “DOWNLOAD MSM SOFTWARE”
- “DOWNLOAD ALL SECTIONS”

Note

“DOWNLOAD ALL SECTIONS” is only available on SERVICE SOFTWARE higher than version 1.10.

[5] Select the first software section to download or “DOWNLOAD ALL SECTIONS.”

[6] Use the instructions on the screen.

Note

“Download Completed Successfully” appears on the screen.

[7] Do Step 5 - Step 6 until all software sections have the new software loaded.

[8] Click [Return]**.**

[9] Exit the SERVICE SOFTWARE.

[10] Check for the correct operation of the MULTILOADER 7000.

Section 2: Error Codes

General Information

Important

- For several error codes, “SOFTWARE PROBLEMS” displays on the OPERATOR PANEL. The software malfunctioned and cannot identify the cause. Press “CLEAR” and begin again. The MULTILOADER 7000 does not further analyze these malfunctions.
- When clearing an error code, avoid a malfunction of the MULTILOADER 7000. Press the “CLEAR SOFT SWITCH” below the OPERATOR DISPLAY or de-energize and energize the MULTILOADER 7000. Do not press the red RESET SWITCH on any BOARD.

The MULTILOADER 7000 displays an error code in the following format:

SY	CA	MA	MS	IN	PR
00	69	9B	00	00	00

The code is broken down into 6 groups with a 2-digit hex code listed under each group.

Group	2-Digit Hex Code
SY - System	00
CA - Cassette	69
MA - Magazine	9B
MS - Magazine Shuttle Mechanism	00
IN - Interface	00
PR - Processor	00

Note

- “00” represents no error for that task. A detailed explanation of each error code and a list of possible causes of the error are available in the “Troubleshooting” section of the “SERVICE SOFTWARE” and in this publication. For information on “Starting the SERVICE SOFTWARE”, see Page 12.
- Normally the MULTILOADER 7000 returns all systems to the home position after an error, then displays the error code. If a LAPTOP COMPUTER is connected to the MULTILOADER 7000, or if the MULTILOADER 7000 is operating in continuous mode, the MULTILOADER 7000 stops all systems immediately without returning them to the home position. This allows for better diagnosis of the problem. The MULTILOADER 7000 then displays multiple messages instructing the operator to remove CASSETTES and film.

Error Code Descriptions: System

B1 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and CASSETTE-TASK occurred during entering service mode.		Press “CLEAR” and start again.

B2 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and PROCESSOR-TASK occurred.		Press “CLEAR” and start again.

B3 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and CASSETTE-TASK occurred after a system failure.		Press “CLEAR” and start again.

B4 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and MAGAZINE-TASK occurred while FRONT DOOR is open and MAGAZINE CODES are checked.		Press “CLEAR” and start again.

B5 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and CASSETTE-TASK occurred while any UNIT is not in home position.		Press “CLEAR” and start again.

B6 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and CASSETTE-TASK occurred during PROCESSOR warm-up.		Press “CLEAR” and start again.

B7 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and MAGAZINE-TASK occurred while ML 7000 is ready to allow opening of FRONT DOOR.		Press “CLEAR” and start again.

B8 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and CASSETTE-TASK occurred after pressing “FUNC” key.		Press “CLEAR” and start again.

B9 - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between SYSTEM-TASK and CASSETTE-TASK occurred after pressing “PROC” key.		Press “CLEAR” and start again.

BA - INTERNAL-BASE TASK ERRORS

PROBLEM	CAUSE	ACTION
A software communication error between MAGAZINE UNIT and MSM UNIT or a MSM error occurred during checking of the FRONT DOOR.		Press “CLEAR” and start again. See the MSM error code, if available.

C0 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A MAILBOX communications error occurred.		Press “CLEAR” and start again.

D2 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred. Command does not exist.		Press “CLEAR” and start again.

D3 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred. Parameter not OK.		Press “CLEAR” and start again.

D5 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred. Wrong message received as response to last command.		Press “CLEAR” and start again.

D6 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred. Number of bytes in received block too large.		Press “CLEAR” and start again.

F0 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
Communication problem occurred in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.

F1 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
Communication problem in conjunction with the LAPTOP - RS232 signal DSR not ready on time.	Software problem.	Press “CLEAR” and start again.
	SERIAL INTERFACE CABLE between LAPTOP and MULTILOADER/ MINILOADER CONNECTOR or between MULTI/MINILOADER and BOARD A1 X4 is damaged or not connected correctly.	
	BOARD A1 is damaged.	
	SERIAL INTERFACE of LAPTOP is damaged.	

F2 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred in conjunction with the LAPTOP. Command does not exist.		Press “CLEAR” and start again.

F3 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem in conjunction with the LAPTOP. No response from LAPTOP.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. BOARD A1 could be damaged.	
	The LAPTOP DATA CABLE could be damaged.	

F4 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. BOARD A1 could be damaged.	
	The LAPTOP DATA CABLE could be damaged.	

F5 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. BOARD A1 could be damaged.	
	The LAPTOP DATA CABLE could be damaged.	

F6 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem in conjunction with the LAPTOP, wrong checksum.	Software problem.	Press “CLEAR” and start again.

F7 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.
	Hardware/software problem. BOARD A1 could be damaged.	
	The LAPTOP DATA CABLE could be damaged.	

F9 - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.

FA - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
A software problem occurred in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.

FD - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
Communication problem in conjunction with the LAPTOP. RS232 signal DSR not ready on time.	Software problem.	Press “CLEAR” and start again.
	SERIAL INTERFACE CABLE between LAPTOP and MULTILOADER/ MINILOADER CONNECTOR SERIAL INTERFACE or between Multi/ MINILOADER and BOARD A1 X4 is damaged or not connected correctly.	
	BOARD A1 is damaged.	
	SERIAL INTERFACE of LAPTOP is damaged.	

FE - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem in conjunction with the LAPTOP.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. BOARD A1 could be damaged.	
	The LAPTOP DATA CABLE could be damaged.	

FF - INTERNAL SYSTEM ERRORS

PROBLEM	CAUSE	ACTION
CES set the MULTILOADER/ MINILOADER into inoperative mode.		

Error Code Descriptions: Cassette

62 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
For LOAD ONLY, the inserted CASSETTE should be empty but it was not. This is just a WARNING MESSAGE.		

63 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A time-out in the PROCESSOR occurred. The CASSETTE cannot be unloaded.	The PROCESSOR has a malfunction.	Do the PROCESSOR DIAGNOSTICS.

64 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The CASSETTE is empty. A time-out occurred when the CASSETTE OPENER was moving down to the “CASSETTE EMPTY = NOT CLOSED POSITION”.	MOTOR M5/C_OP CASSETTE OPENING does not run.	• Enter the SERVICE MODE. • Start the CASSETTE OPENER MOTOR in forward direction. • Trace the signal M_C_OP_F on BOARD A8 sheet 5 and signal OPEN on BOARD A8, sheet 5 and A9. • Remove the damaged components and install a new component.
	The ODOMETER WHEEL is not adjusted correctly.	Do the adjustment.
	ODOMETER A10/3 is damaged.	• Enter the SERVICE MODE. • Start MOTOR/CASSETTE OPENER forward/backward. • Trace the output signal of A10/3 on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	There is a mechanical defect.	

65 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A time-out occurred and the CASSETTE is not loaded.	This problem is caused by a malfunction of the MAGAZINE UNIT.	Check the ERROR CODE of the MAGAZINE UNIT.

66 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
Error while waiting for the MAGAZINE UNIT.	MAGAZINE UNIT could not finish cycle at end of SERIAL UNLOAD.	Check the MAGAZINE UNIT Error Code.

67 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
There is no MAGAZINE available for SERIAL UNLOAD.		• Press “CLEAR”. • Insert the SERIAL UNLOAD MAGAZINE. • Start again.

68 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A wrong cassette size is entered for SERIAL UNLOAD.		• Press “CLEAR”. • Select the correct CASSETTE. • Start again.

69 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
MAGAZINES are not closed before opening input flap to return cassette.	This problem is caused by a malfunction in the MAGAZINE UNIT.	Check the ERROR CODE of the MAGAZINE UNIT.
	In case of a software problem:	• Press “CLEAR”. • Select the correct CASSETTE. • Start again.

6A - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER did not reach the UPPER END SWITCH B15 within 2 seconds after the CASSETTE OPENER MOTOR was energized while trying to initialize the CASSETTE UNIT.	The SENSOR B15/C_OP-EO CASSETTE OPENER END SWITCH OPEN malfunctioned.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B15. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	MOTOR M5/C_OP CASSETTE OPENING is not operating.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE OPENING. • Trace signal M_C_OP_F on BOARD A8, sheet 5 through BOARD A9. • Remove the faulty component and install a new component.
	There is no mechanical defect.	

6B - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A time-out occurred and the MAGAZINE SUCKER BAR stayed in the CASSETTE.	This problem is caused by a malfunction of the MAGAZINE UNIT.	Check the ERROR CODE of the MAGAZINE UNIT.
	A software problem occurred.	Press “CLEAR” and start again.

6C - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A time-out occurred and the INPUT FLAP is not open.	SENSOR B3/C_IF_EO CASSETTE INPUT FLAP END SWITCH is defective.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B3. • Trace the output signal on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	MOTOR M1 INPUT FLAP is not operating.	• Enter the SERVICE MODE. • Start MOTOR M1. • Trace M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	115 V AC are missing at BOARD A8.	• Check using a DIGITAL VOLT METER for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4 • If voltage is missing, check for the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM, RELAY K2 on the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed. • Remove the damaged component and install a new component.
	There is no mechanical defect.	

6D - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR stayed inside the CASSETTE before closing the CASETTE.	This problem is caused by a malfunction of the MAGAZINE UNIT.	Check the ERROR CODE of the MAGAZINE UNIT.
	A software problem occurred.	Press “CLEAR” and start again.

6E - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The MAGAZINES are open after time-out before opening the input flap.	This problem is caused by a malfunction of the MAGAZINE UNIT.	Check the ERROR CODE of the MAGAZINE UNIT.
	A software problem occurred.	Press “CLEAR” and start again.

6F - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A time-out occurred and the MAGAZINE SUCKER BAR is in the CASSETTE at the wrong time.	This problem is caused by a malfunction of the MAGAZINE UNIT.	Check the ERROR CODE of the MAGAZINE UNIT.
	A software problem occurred.	Press “CLEAR” and start again.

70 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The CASSETTE UNIT is not in home position.	The status of one of the following SENSORS is wrong.	Start the SENSOR TEST and check the status of the following SENSORS: • B3/C_IF_EO CASSETTE INPUT FLAP END SWITCH OPEN ON • B4/C_IF_EC CASSETTE INPUT FLAP END SWITCH OPEN OFF • B5/C_IN_EL CASSETTE IN END SWITCH LEFT OFF • B6/C_IN_EL CASSETTE IN END SWITCH MIDDLE OFF • B7/C_IN_EL CASSETTE IN END SWITCH RIGHT OFF • B9/C_CE_EC CENTERING BARS END SWITCH CLOSED OFF • B10/C_CE_EO CENTERING BARS END SWITCH OPEN ON • B11/C_CE_CL CASSETTE CENTERED LEFT OFF • B12/C_CE_CR CASSETTE CENTERED RIGHT OFF • B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN ON • B17/C_PU_EF FILM PICK UP END SWITCH FRONT OFF • B18/C_PU_ER FILM PICK UP END SWITCH REAR ON • B20/C_PU_VO VACUUM OFF OFF • B23/C_TCI TOP COVER INTERLOCK ON **Note** Some of these SENSORS are very sensitive to room light. If the covers are off, a RESET might be started automatically. Make sure that no bright light reaches the SENSORS.

74 - CASSETTE FEED IN

PROBLEM	CAUSE	ACTION
The CASSETTE is detected by the CASSETTE REGISTRATION SENSOR (A8 BOARD, sheet 2) and the CASSETTE TRANSPORT MOTOR is energized. Within the next 5 seconds, the CASSETTE did not actuate at least 2 of the 3 CASSETTE END SWITCHES: LEFT, MIDDLE, RIGHT (A8 BOARD, sheet 2) and a time-out occurred. The additional reflective SENSOR B24/C_IN_R2 installed with MODIFICATION 30 checks within 1.2 seconds after SENSOR B2 was actuated if its infrared beam is interrupted by a CASSETTE. If it is not interrupted, the CASSETTE TRANSPORT MOTOR is switched off and the green READY LAMP is switched on again.	SENSOR B24/C_IN_R2 is defective.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually interrupt SENSOR B24. • Trace the output signal on BOARD A8, sheet 3. • Removed the damaged component and install a new component.
	The operator tripped the CASSETTE REGISTRATION SENSOR manually. This is only possible if SENSOR B24 is not installed or not activated (SWITCH S2 on BOARD A8 not up).	Explain to the operator.
	The CASSETTE was pulled out upwards instead of straight or slightly downwards. In this case, SENSOR B2/C_IN_R is actuated and the next cycle is started. This is only possible if SENSOR B24 is not installed or not activated (SWITCH S2 on BOARD A8 is not up).	Explain to the operator.
	The SENSOR CASSETTE REGISTRATION B2/C_IN_R is adjusted too low. In this case, a curved CASSETTE can trigger SENSOR B2 again when it is pulled out.	Adjust SENSOR B2. The SENSOR should be actuated after moving the CASSETTE ENTRANCE ACTUATOR down for approximately 0.5 to 1 mm.
	The SENSOR B5/C_IN_EL or B6/C_IN_EM or B7/C_IN_ER is too strong (actuator friction too high or spring tension too high) and it is not actuated by a small CASSETTE (18 x 24 M).	Install MODIFICATION 26.
	The friction of the CASSETTE TRANSPORT ROLLERS is too low. In this case, the CASSETTE is not transported to the 3 CASSETTE END SWITCHES B5/B6/B7 or the CASSETTE is not pressed hard enough against the END SWITCHES.	Clean the CASSETTE TRANSPORT ROLLERS with water only.
	The two supporting BOLTS located between the long CASSETTE TRANSPORT ROLLER and the CASSETTE END STOP is too high.	Remove the WASHER under the BOLT.
	The DRIVE BELT tension for the CASSETTE TRANSPORT ROLLERS is too high. The CASSETTE transport may be slowed down or even stopped. In this case, a time-out error may occur.	Decrease the tension of the DRIVE BELT.

PROBLEM	CAUSE	ACTION
	CASSETTE at the End Stop but not detected by at least 2 of the 3 END SWITCHES.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the 3 SENSORS B5/C_IN_EL, B6/E_IN_EM a B7/ C_IN_ER • Trace their output signals on BOARD A8, sheet 2. • Remove the faulty component and install a new component.
	MOTOR M2/C_IN CASSETTE INPUT not operating.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT (forward). • Trace the signal M_C_IN_F from the BOARD A8, sheet 5 to A9. • Remove the faulty component and install a new component.
	The HOLDING FINGER was not in the back position.	

75 - CASSETTE CENTERING

PROBLEM	CAUSE	ACTION
The CENTERING BARS reached their innermost position and SENSOR B9/ C_CE_EC CENTERING BARS CLOSED is actuated.	A 18x24 CASSETTE is fed in wrong.	Explain to the operator.
	SENSOR B9/C_CE_EC is in the wrong position. This SENSOR must not be actuated when a CASSETTE 18x24 is centered.	Adjust the position of SENSOR B9. It must not be actuated when a CASSETTE 18x24 is centered.
	115 V is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when TOP COVER and FRONT DOOR are closed.
	MOTOR M4/C_CE CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start the MOTOR CENTERING CASSETTE. • Trace the signal M_C_CE_C on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B9/C_CE_EC CASSETTE CENTERING BARS CLOSED is damaged.	• Start the SENSOR TEST. • Manually operate SENSOR B9. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	SENSOR B9 is blocked by dirt in the actuated position.	Clean the CASSETTE AREA.

76 - CASSETTE CENTERING

PROBLEM	CAUSE	ACTION
SENSOR B11/C_CE_CL CASSETTE CENTERED LEFT and B12/C_CE_CR CASSETTE CENTERED RIGHT had not been actuated with 3 seconds after the start of the CENTERING MOTOR.	The friction between CASSETTE TRANSPORT ROLLERS and CASSETTE is too high and the CASSETTE cannot be moved to the center.	Powder the last 3 CASSETTE TRANSPORT ROLLERS with TALCUM POWDER.
	The CENTERING BARS do not move to the center.	Check if the DRIVE GEAR at the CENTERING MOTOR is broken. Install a new white DRIVE GEAR 9221850.
	The CENTERING BARS do not move to the center.	If the TIMING BELT tension is too high, loosen the tension.
	The wires to SENSOR B11/C_CE_CL or SENSOR B12/C_CE_CR are broken.	• If Mod 22 is not installed, install it. • If the Mod 22 is installed, install a new WIRE HARNESS.
	SENSOR B11/C_CE_CL CASSETTE CENTERED LEFT or SENSOR B12/ C_CE_CR CASSETTE CENTERED RIGHT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually operate both SENSORS. They are connected in line. • Trace their output on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M4/C_CE CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start the MOTOR CENTERING CASSETTE. • Trace the signal M_C_CE of BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The CASSETTE is mechanically blocked.	Remove the mechanical obstruction.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when TOP COVER and FRONT DOOR are closed.
	There is a mechanical defect.	

77 - CASSETTE CENTERING

PROBLEM	CAUSE	ACTION
The CASSETTE CENTERING BARS did not reach the open position and a time-out occurred.	The CENTERING BARS do not move to the center.	Check if the DRIVE GEAR at the CENTERING MOTOR is broken. Install the new white DRIVE GEAR 9221850.
	The CENTERING BARS do not move to the open position.	If the TIMING BELT tension is too high, loosen the tension.
	SENSOR B10/C_CE_EO CENTERING BARS END SWITCH OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually operate SENSOR B10. • Trace the output on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M4/C_CE CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start the MOTOR CENTERING CASSETTE. • Trace the signal M_C_CE of BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when TOP COVER and FRONT DOOR are closed.
	There is a mechanical defect.	

78 - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
The INPUT FLAP is open.	In this case something went wrong in the software.	Restart the system.

79 - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
The INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT MIDDLE RIGHT, and a time-out occurred.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when TOP COVER and FRONT DOOR are closed.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B4/C_IF_EC CASSETTE INPUT FLAP CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	The INPUT FLAP is mechanically blocked.	• Remove the obstruction. • Check if the INPUT FLAP is bent.

7A - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
Not enough HOLDING FINGER COUNT PULSES when the HOLDING FINGER moves in to detect the CASSETTE WIDTH.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when TOP COVER and FRONT DOOR are closed.
	MOTOR M3/C_HF HOLDING FINGER is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER. • Trace the signal M_C_HF_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The CASSETTE is put in the wrong way for example 24x30.	Explain to the operator.
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the HOLDING FINGER forward and backward. • Trace the output signals on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	The ODOMETER BOARD A10/1 is misadjusted.	Adjust the ODOMETER.
	There is a mechanical interference.	• Check the WASHERS guiding the HOLDING FINGER ASSEMBLY. Some might have burrs. • Take out the WASHERS and file off the BURRS.
	The tension of the HOLDING FINGER TIMING BELT is too high.	Loosen the TIMING BELT TENSION.

7B - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
Failure in CASSETTE WIDTH DETECTION. A time-out occurred 3 seconds after CASSETTE centered because HOLDING FINGER COUNT pulses are still generated.	One of the 3 CASSETTE IN END SWITCHES, B5/C_IN_EL, B6/C_IN_M or B7/C_IN_ER, is damaged. In this case the HOLDING FINGER MOTOR is not stopped because the STOP CONDITION for this MOTOR NO COUNT PULSES and ALL 3 CASSETTE IN END SWITCHES ACTUATED.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the 3 CASSETTE IN END SWITCHES, B5, B6, B7. • Trace their output signals on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M3/C_HF HOLDING FINGER is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER. • Trace the signal M_C_HF_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the HOLDING FINGER forward and backward. • Trace the output signals on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	There is a mechanical defect.	

7C - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
The HOLDING FINGER did not reach its REAR END POSITION. When the FUNCTION CASSETTE WIDTH is started the HOLDING FINGER is first moved to REAR POSITION to make sure the correct amount of pulses is counted.	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M3/C_HF HOLDING FINGER is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER forward and backward. • Trace the signals M_C_HF_F, forward, and M_C_HF_R, reverse, on the BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	ODOMETER BOARD A10/1 is damaged.	• Enter the SERVICE MODE. • Start MOTOR HOLDING FINGER forward and backward. • Trace the signals COUNTING and DIRECTION on the BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	There is a mechanical defect.	

7D - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
CASSETTE 78 + 7A. The INPUT FLAP is open and not enough HOLDING FINGER COUNT PULSES when the HOLDING FINGER moves in to detect the CASSETTE WIDTH.	INPUT FLAP is open. In this case something went wrong in the software.	Restart the system.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M3/C_HF HOLDING FINGER is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER • Trace the signals M_C_HF_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The CASSETTE is inserted the wrong way.	
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the HOLDING FINGER forward and backward. • Trace the output signals of A10/1 on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.

7E - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
CASSETTE 78 + 7B. The INPUT FLAP is open and a Failure in the CASSETTE WIDTH DETECTION occurred. A time-out occurred 3 seconds after CASSETTE entered, because HOLDING FINGER COUNT PULSES are still generated.	INPUT FLAP is open. In this case something went wrong in the software.	Restart the system.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M3/C_HF HOLDING FINGER is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER • Trace the signals M_C_HF_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the HOLDING FINGER forward and backward. • Trace the output signals of A10/1 on BOARD A8 sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	The CASSETTE is mechanically blocked and cannot reach the CASSETTE END SWITCHES.	

7F - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
CASSETTE 78 + 7C. The INPUT FLAP is open and a the Holding Finger did not reach its FRONT END POSITION.	INPUT FLAP is open. In this case something went wrong in the software.	Restart the system.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M3/C_HF HOLDING FINGER is not running.	• Enter the SERVICE MODE. • Start MOTOR HOLDING FINGER forward and backward. • Trace the signals M_C_HF_F, forward, and M_C_HF_R, reverse, on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start MOTOR HOLDING FINGER forward/backward. • Trace the output signals of A10/1 on BOARD A8 sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	There is a mechanical defect.	

80 - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
CASSETTE 79 + 7A. The INPUT FLAP was not closed within 2 seconds after the CASSETTE MIDDLE RIGHT and a time-out occurred and not enough HOLDING FINGER COUNT PULSES when the HOLDING FINGER moves in to detect the CASSETTE WIDTH.	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signals M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B4/C_IF_EC CASSETTE INPUT FLAP CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8 sheet 1. • Remove the damaged component and install a new component.
	Mechanical defect.	
	MOTOR M3/C_HF HOLDING FINGER is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER. • Trace the signal M_C_HF_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The CASSETTE is put the wrong way in.	
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the MOTOR HOLDING FINGER forward and backward. • Trace the output signals on BOARD A8 sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.

81 - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
CASSETTE 79 + 7B. The INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT, MIDDLE, RIGHT, and a time-out occurred. And a failure in CASSETTE WIDTH DETECTION. A time-out occurred 3 seconds after CASSETTE centered, because HOLDING FINGER COUNT PULSES are still generated.	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signals M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B4/C_IF_EC CASSETTE INPUT FLAP CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B4. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	Mechanical defect.	
	MOTOR M3/C_HF HOLDING FINGER is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE HOLDING FINGER. • Trace the signal M_C_HF_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the MOTOR HOLDING FINGER forward and backward. • Trace the output signals on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	The CASSETTE is mechanically blocked and cannot reach the CASSETTE END SWITCHES.	

82 - CASSETTE WIDTH DETECTION

PROBLEM	CAUSE	ACTION
CASSETTE 79 + 7C. The INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT, MIDDLE, RIGHT, and a time-out occurred and the HOLDING FINGER did not reach its FRONT END POSITION.	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signals M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B4/C_IF_EC CASSETTE INPUT FLAP CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B4. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	Mechanical defect.	
	MOTOR M3/C_HF HOLDING FINGER is not running.	• Enter the SERVICE MODE. • Start MOTOR HOLDING FINGER forward and backward. • Trace the signal M_C_HF_F, forward, and M_C_HF_R, reverse, on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start the MOTOR HOLDING FINGER forward/backward. • Trace the output signals on BOARD A8 sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.

83 - CASSETTE OPENING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER is not in the UPPER END position and the END SWITCH B15 is not actuated. This problem is detected before the start of FUNCTION CASSETTE OPENING.	The SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is defective.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B15. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	The CASSETTE OPENER MECHANISM is in the wrong position.	

84 - CASSETTE OPENING

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR is not in the back position.	The CASSETTE SUCKER BAR is in the wrong position.	
	SENSOR B18/C_PU_ER FILM PICK UP REAR does not detect that the CASSETTE SUCKER BAR CARRIAGE is in the back position.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the CASSETTE SUCKER BAR CARRIAGE to the back position. • Trace the output signal from SENSOR B18/C_PU_ER on the BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

85 - CASSETTE OPENING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER did not reach its BOTTOM POSITION within 2 seconds after the CASSETTE OPENER MOTOR is started and a time-out occurred.	The OPENER MECHANISM is blocked mechanically. It is most likely that the STOP PIN is too close to the STOP BOLT for OPENER DOWN.	Adjust the CASSETTE OPENER.
	SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is misadjusted.	Adjust the CASSETTE OPENER.
	MOTOR M5/OP CASSETTE does not move.	• Start the COMPONENT TEST and start the CASSETTE OPENER MOTOR in reverse. • Trace the signal M_C_OP_F on BOARD A8 sheet 5 and signal CLOSE on BOARD A8 sheet 5 and BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER A10/3 is damaged.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.

86 - CASSETTE OPENING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER did not reach the UPPER END SWITCH B15 within 2 seconds after the CASSETTE OPENER MOTOR was started in the BLOW POSITION.	The SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B15. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	MOTOR M5/C_OP CASSETTE OPENING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE OPENING. • Trace signal M_C_OP_F on BOARD A8, sheet 5 through BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER A10/3 is damaged.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	There is a mechanical defect.	

87 - CASSETTE OPENING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER did not reach the BLOW POSITION within 1.5 seconds after the CASSETTE OPENER MOTOR was started to move the OPENER from the BOTTOM POSITION to the BLOW POSITION.	MOTOR M5/C_OP CASSETTE OPENING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE OPENING. • Trace signal M_C_OP_F on BOARD A8 sheet 5 through BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER A10/3 is damaged.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. • Remove the damaged component and install a new component. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement.
	There is a mechanical defect.	

88 - CASSETTE OPENING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER reached to UPPER POSITION but the CASSETTE is not opened.	The CASSETTE LATCH is misadjusted or damaged and the OPENER SHOVEL slides out of the LATCH.	• Adjust the LATCH. • If an adjustment is not possible, install a new CASSETTE.
	The CASSETTE FRONT PLATES rub against each other, especially 18x24 mm.	Install a new CASSETTE.
	The CASSETTE is fed in the wrong way, upside down or hinge side first.	
	SENSOR B16/C_OP_RO is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B16. • Trace the output signal on BOARD A8 sheet 3. • Remove the damaged component and install a new component.
	SOLENOID Y4/C_OP CASSETTE OPENER does not work.	• Enter the SERVICE MODE. • Energize the CASSETTE OPENER SOLENOID. • Trace the signal Y_C_OP on BOARD A8, sheet 6. • Remove the damaged component and install a new component.
	The wires to the OPENER SOLENOID Y4 are broken.	• If Mod 26 is not installed, install it. • If Mod 26 is installed, install a new WIRE HARNESS.
	There is a mechanical defect. For example the OPENER CLAWS are damaged.	
	An empty CASSETTE, usually 35 x 43 mm is not opened due to the vacuum between both screens.	Use *Letraline* TAPE.
	The OPENER SHOVEL is stopped by extensive CASSETTE LATCH BURR.	File off the BURR or install a new CASSETTE.

89 - MOVE SUCKER BAR TO REAR POSITION

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR CARRIAGE did not reach its back position during a RESET.	The SENSOR REFLECTOR surface is dirty or damaged.	
	SENSOR B18/C_PU_ER FILM PICK UP REAR is damaged.	• Enter the SERVICE MODE. • Manually actuate SENSOR B18. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8, sheet 7. • Remove the damaged component and install a new component.

8A - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE SUCKER BAR is in the CASSETTE to pick up the film however the SUCKER BAR is not tilted.	SOLENOID Y7/C_PU TILTING SUCKER BAR is not working.	• Enter the SERVICE MODE. • Energize the SOLENOID TILTING SUCKER BAR. • Trace the signal Y_C_PU on BOARD A8, sheet 6. • Remove the damaged component and install a new component. **Note** Check for broken wires to the SOLENOID Y7. If Mod 18 is not installed, install it.
	SENSOR B19/C_PU_T SUCKER BAR TILT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B19. • Trace the output signal on BOARD A8 sheet 3. • Remove the damaged component and install a new component. **Note** • Check for broken wires to the SOLENOID Y7. If Mod 18 is not installed, install it. • It is possible that the SENSOR ACTUATOR of B19 is blocked by the ACTUATING CURVE. Check for ease of movement of the actuator lever.

8B - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE SUCKER BAR is pulled out of the CASSETTE but not tilted back.	There is no film in the CASSETTE.	Explain to the operator that he has to press “LOAD ONLY” first when using an empty CASSETTE.
	The film sticks to the UPPER SCREEN.	• Check that the BLOW PIPE ASSEMBLY rests correctly on the CASSETTE LID. • Check that air is blown through the BLOW PIPES. • Check the BLOW PIPE POSITION. • Increase value of PARAMETER BLOW TIME. • Use *Letraline* TAPE.
	The SUCKER BAR is too far inside the CASSETTE and cannot tilt back even when a film is on the TUBE SIDE SCREEN. This problem especially occurs when the CASSETTES are excessively curved.	Adjust the position of the CASSETTE SUCKER BAR, 18 + 1 mm from the leading edge.
	SOLENOID Y7/C_PU TILTING SUCKER BAR is blocked or its SPRING is damaged.	
	SENSOR B19/C_PU_T SUCKER BAR TILT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B19. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component.

8C - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE SUCKER BAR did not reach the FRONT POSITION to pick up a film from the CASSETTE.	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • START MOTOR CASSETTE FILM PICK UP forward. • Trace the signal M_PU_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B17/C_PU_EF FILM PICK UP FRONT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B17. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

8D - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The LEADING EDGE of the CASSETTE FILM is not recognized by the SENSOR B20 VACUUM OFF.	There is no film in the CASSETTE. The problem can only occur with 2 types of CASSETTES: • With a CRT-CASSETTE - The CRT CASSETTE has no screen. Therefore no vacuum can be built up in the CASSETTE SUCKERS and the SUCKER BAR can tilt back. • With a MAMMO CASSETTE - In the area of the LEAD BLOCKER is a vacuum leak and only a weak vacuum is built up in the CASSETTE SUCKERS and the SUCKER BAR can tilt back.	Explain to the customer.
	A film jam occurred. The film was guided under the mirror of SENSOR B20/C_PU_VO VACUUM OFF.	Check the CASSETTE SUCKER BAR adjustment.

PROBLEM	CAUSE	ACTION
	The adjustment of SENSOR B20 is not correct.	Adjust SENSOR B20. **Note** If the SENSOR B20 does not recognize the film, the vacuum is not switched off and the film sticks at the SUCKERS. After some time the film might be transported through the CONVEYOR and might drop into the FILM POCKET AREA.
	The film is highly transparent for infrared, for example AGFA DUPLICATE FILM.	Install a new SENSOR B20.
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B20 • Trace the output signal on BOARD A8, sheet 3. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by the OSCILLATOR U37.
	115 V AC is missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The CASSETTE SUCKER BAR lost the film.	Check for vacuum leakage.

8E - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE SUCKER BAR CARRIAGE did not reach its back position within 3 seconds after a film was picked up in the CASSETTE and the LEADING EDGE of the film is not recognized.	The CASSETTE SCREEN is loose on 1 side.	
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8 sheet 7. • Remove the damaged component and install a new component.
	SENSOR B18/C_PU_ER FILM PICK UP REAR is damaged.	• Enter the SERVICE MODE. • Manually actuate SENSOR B18. • Trace the output signal on BOARD A8 sheet 3. • Remove the damaged component and install a new component.
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by OSCILLATOR U37. Remove the damaged component and install a new component.

8F - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE SUCKER BAR reached its back position and the FILM TRAILING EDGE is not recognized by the SENSOR B20 VACUUM OFF within the next 20 seconds.	There is a film jam in the CONVEYER, approximately in the middle of the FILM GUIDE. This problem can only occur with 18 x 24 or 8 x 10 films.	• Adjust the CASSETTE SUCKER BAR ASSEMBLY. • Set the PARAMETER VACUUM OFF TIME to 80 ms.
	The films stall at the GUIDE PLATE CUT-OUTS of the front set TRANSPORT ROLLERS. This problem might occur with large films.	Carefully bend the CUT OUT EDGE upwards.
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by the OSCILLATOR U37.
	The film sticks to the SUCKERS.	Check if the vacuum is de-energized.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M7/C_PU_RO ROLLER MOTOR is not running.	• Enter the SERVICE MODE. • Start the CASSETTE ROLLER MOTOR. • Trace signal M_C_PU_RO on BOARD A8, sheet 7. • Remove the damaged component and install a new component.

90 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The TRAILING EDGE of the film was detected too early by the SENSOR B20 VACUUM OFF. This means the film dropped down before it was caught by the TRANSPORT ROLLERS.	The VACUUM SYSTEM has a leakage.	
	The SENSOR B18/C_PU_ER FILM PICK UP END SWITCH REAR is in the wrong position.	Adjust SENSOR B18.
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by the OSCILLATOR U37. It is possible that films highly transparent for infrared, for example AGFA DUPLICATE FILM, are not recognized by SENSOR B20. In this case install a new SENSOR.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT are closed.
	MOTOR M7/C_PU_RO ROLLER MOTOR is not running.	• Enter the SERVICE MODE. • Start the CASSETTE ROLLER MOTOR. • Trace signal M_C_PU_RO on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	Parameter Vacuum Off time set to a too low value. Set according specification (= 08).	

91 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR is in the CASSETTE to pick up the film however the SUCKER BAR is not tilted. 3rd attempt.	SOLENOID Y7/C_PU TILTING SUCKER BAR is not working.	• Enter the SERVICE MODE. • Energize the SOLENOID TILTING CASSETTE SUCKER BAR. • Trace the signal Y_C_PU on BOARD A8, sheet 6. • Remove the damaged component and install a new component. **Note** Check for broken wires to the SOLENOID Y7 or SENSOR B19. XML 300: If Mod 18 is not installed install it.
	SENSOR B19/C_PU_T SUCKER BAR TILT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B19. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component. **Note** • Check for broken wires to the SOLENOID Y7, XML 300: • If Mod 18 is not installed install it. – It is possible that the SENSOR ACTUATOR of B19 is blocked by the ACTUATING CURVE. • Check for ease of movement of the ACTUATOR LEVER.

92 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR is pulled out of the CASSETTE but not tilted back, 3rd attempt.	The film sticks to the UPPER SCREEN.	• Check that the BLOW PIPE ASSEMBLY rests correctly on the CASSETTE LID. • Check that air is blown through the BLOW PIPES. • Check the BLOW PIPE POSITION. • Increase value of PARAMETER BLOW TIME. • Use *Letraline* TAPE.
	The SUCKER BAR is too far inside the CASSETTE and cannot tilt back even when a film is on the TUBE SIDE SCREEN. This problem especially occurs when the CASSETTES are excessively curved.	Adjust the position of the CASSETTE SUCKER BAR, 18+1 mm away from the leading edge.

PROBLEM	CAUSE	ACTION
	SOLENOID Y7/C_PU TILTING SUCKER BAR is blocked or its SPRING is damaged.	
	SENSOR B19/C_PU_T SUCKER BAR TILT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B19. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component.

93 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR CARRIAGE did not reach the FRONT POSITION to pick up a film from the CASSETTE.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP forward. • Trace the signal M_PU_F on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B17/C_PU_EF FILM PICK UP FRONT is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B17. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

94 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The LEADING EDGE of the CASSETTE FILM is not recognized by the SENSOR B20 VACUUM OFF, 3rd attempt.	There is no film in the CASSETTE. The problem can only occur with 2 types of CASSETTES.	• With a CRT-CASSETTE. The CRT CASSETTE has no screen. Therefore, no vacuum can be built up in the CASSETTE SUCKERS and the SUCKER BAR can tilt back. • With a MAMMO-CASSETTE. In the area of the LEAD BLOCKER is a vacuum leak and only a weak vacuum is built up in the CASSETTE SUCKERS and the SUCKER BAR can tilt back. • Explain to the customer.
	There is a film in an older MAMMO CASSETTE without a button. The problem can occur if the CASSETTE BLOW PIPES are not adjusted correctly. In this case, the film might stick to the LID SCREEN. This condition is not recognized by the XML 300/XML 300 and the CASSETTE SUCKER BAR tries to pick up the film from the TUBE SIDE SCREEN. If the SUCKERS are sealed correctly to the TUBE SIDE, the ML 300 will recognize that there is no film. If the SUCKERS are not sealed correctly due to the LEAD BLOCKER of the CASSETTE, the vacuum is not built up correctly, the CASSETTE SUCKER BAR tilts back, and the problem occurs.	Adjust the CASSETTE SUCKER BAR BLOW PIPES. **Note** The ML 2000 is NOT specified for the old type MAMMO CASSETTES.
	A film jam occurred. The film was guided under the mirror of SENSOR B20/C_PU_VO VACUUM OFF.	Check the CASSETTE SUCKER BAR adjustment.
	The adjustment of SENSOR B20 is not correct.	Adjust SENSOR B20. **Note** If the SENSOR B20 does not recognize the film the vacuum is not switched off and the film sticks at the SUCKERS. After some time the film might be transported through the CONVEYOR and might drop into the FILM POCKET AREA.
	The film is highly transparent for infrared, for example AGFA DUPLICATE FILM.	Install a new SENSOR B20.

PROBLEM	CAUSE	ACTION
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. **Note** A Logic PEN is a requirement. SENSOR B20 is pulsed by the OSCILLATOR U37.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The CASSETTE SUCKER BAR lost the FILM.	Check for a vacuum leakage.

95 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR CARRIAGE did not reach its back position within 3 seconds after a film was picked up in the CASSETTE.	The CASSETTE SCREEN is loose on one side.	
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER. SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B18/C_PU_ER FILM PICK UP REAR is damaged.	• Enter the SERVICE MODE. • Manually actuate SENSOR B18. • Trace the output signal on BOARD S8 sheet 3. • Remove the damaged component and install a new component.
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by OSCILLATOR U37. • Remove the damaged component and install a new component.

96 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR reached its back position and the FILM TRAILING EDGE is not recognized by the SENSOR B20 VACUUM OFF within the next 20 seconds.	There is a film jam in the CONVEYER, approximately in the middle of the FILM GUIDE. This problem can only occur with 18 x 24 or 8 x 10 films.	• Adjust the CASSETTE SUCKER bar ASSEMBLY. • Set the PARAMETER VACUUM OFF TIME to 80 ms.
	The film stalls at the GUIDE PLATE CUT-OUTS of the front set TRANSPORT ROLLERS. This problem might occur with large films.	• Carefully bend the CUT OUT EDGE upwards.
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by the OSCILLATOR U37.
	The film sticks to the SUCKERS.	Check if the Vacuum is turned off.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M7/C_PU_RO ROLLER MOTOR is not running.	• Enter the SERVICE MODE. • Start the CASSETTE ROLLER MOTOR. • Trace signal M_C_PU_RO on BOARD A8, sheet 7. • Remove the damaged component and install a new component.

97 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The TRAILING EDGE of the film was detected too early by the SENSOR B20 VACUUM OFF. This means the film dropped down before it was caught by the TRANSPORT ROLLERS.	The VACUUM SYSTEM has a leakage.	
	The SENSOR B18/C_PU_ER FILM PICK UP END SWITCH REAR is in the wrong position.	Adjust SENSOR B18.

PROBLEM	CAUSE	ACTION
	SENSOR B20/C_PU_VO VACUUM OFF is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B20. • Trace the output signal on BOARD A8, sheet 3. • Install a new SENSOR. **Note** A LOGIC PEN is a requirement. SENSOR B20 is pulsed by the OSCILLATOR U37. It is possible that films highly transparent for infrared, for example AGFA DUPLICATE FILM, are not recognized by SENSOR B20.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT are closed.
	MOTOR M7/C_PU_RO ROLLER MOTOR is not running.	• Enter the SERVICE MODE. • Start the CASSETTE ROLLER MOTOR. • Trace signal M_C_PU_RO on BOARD A8, sheet 7. • Remove the damaged component and install a new component.

99 - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The LEADING EDGE of the film is recognized but the CASSETTE SUCKER BAR did not reach the REAR POSITION and a time-out occurred.	The surface of the SENSOR REFLECTOR for B18/C_PU_ER FILM PICK UP REAR is dirty or damaged.	• Clean surface. • If damaged, use reflective foil instead, like MAGAZINE closed detection.
	SENSOR B18/C_PU_ER FILM PICK UP REAR is damaged.	• Enter the SERVICE MODE. • Manually actuate SENSOR B18. **Note** Trace the output signal on BOARD A8, sheet 3. Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	115 VA missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

9A - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE OPENER did not reach its BOTTOM POSITION within 2 seconds after the CASSETTE OPENER MOTOR is started and a time out occurred.	The OPENER MECHANISM is blocked mechanically. It is most likely that the STOP PIN is too close to the STOP BOLT for OPENER DOWN.	Adjust the CASSETTE OPENER.
	SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is misadjusted.	Adjust the CASSETTE OPENER.
	MOTOR M5/OP CASSETTE does not move.	• Start the COMPONENT TEST and start the CASSETTE OPENER MOTOR in reverse direction. • Trace the signal M_C_OP_P on BOARD A8 sheet 5 and signal close on BOARD A8, sheet 5 and BOARD A9. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	ODOMETER BOARD A10/3 is damaged.	• Enter the SERVICE MOTOR. • Start MOTOR CASSETTE OPENER forward/backward. Trace the output signals of A10/3 on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.
	Film lays in the CASSETTE LABYRINTH.	• Check the front position of the FILM POCKET SUCKER BAR ARM. If it does not reach a stable front position adjust the TIMING DISK. • Check that the fresh film is blown off the FILM POCKET SUCKERS. If it is not blown off correctly, check the SOLENOID VALVE Y10/ M_PU_BS. If Y10 becomes energized but does not work, take out the blue SCREW, run a few cycles, and insert the SCREW again. This SOLENOID is sometimes blocked by small particles and they become blown off when the SCREW is out for a few cycles.

9B - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE SUCKER BAR is not in the REAR POSITION.	The CASSETTE SUCKER BAR is in the wrong position. The CASSETTE SUCKER BAR was moved out of its back position by vibrations or manually.	Check the adjustment of SENSOR B18/ C_PU_ER.
	SENSOR B18/C_PU_ER does not detect that the CASSETTE SUCKER BAR CARRIAGE is in the REAR POSITION.	• Check if the reflective surface at the CARRIAGE is dirty. • Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the CASSETTE SUCKER BAR CARRIAGE to the REAR POSITION. • Trace the output signal from SENSOR B18/C_PU_ER on the BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

9C - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE OPENER did not reach the SENSOR B15/C_OP_EO within 2 seconds after the CASSETTE OPENER MOTOR was started in the CASSETTE EMPTY POSITION.	The OPENER MECHANISM is blocked mechanically. It is most likely that the STOP PIN is too close to the STOP BOLT for OPENER DOWN.	Adjust the CASSETTE OPENER.
	SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is misadjusted.	Adjust the CASSETTE OPENER.
	MOTOR M5/OP CASSETTE does not move.	• Start the COMPONENT TEST and start the CASSETTE OPENER MOTOR in reverse direction. • Trace the signal M_C_OP_P on BOARD A8, sheet 5 and signal close on BOARD A8, sheet 5 and BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER BOARD A10/3 is damaged.	• Enter the SERVICE MOTOR. • Start MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.

9E - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
This problem occurred during LOAD ONLY. The CASSETTE OPENER is not in the UPPER POSITION. This is tested at the begin of the function.	The OPENER MECHANISM is blocked mechanically. It is most likely that the STOP PIN is too close to the STOP BOLT for OPENER DOWN.	Adjust the CASSETTE OPENER.
	SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is misadjusted.	Adjust the CASSETTE OPENER.

PROBLEM	CAUSE	ACTION
	MOTOR M5/OP CASSETTE does not move.	• Start the COMPONENT TEST and start the CASSETTE OPENER MOTOR in reverse direction. • Trace the signal M_C_OP_P on BOARD A8, sheet 5 and signal close on BOARD A8, sheet 5 and BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER BOARD A10/3 is damaged.	• Enter the SERVICE MOTOR. • Start MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.

9F - CASSETTE FILM PICK UP

PROBLEM	CAUSE	ACTION
The LEADING EDGE of the film is recognized but the CASSETTE SUCKER BAR did not reach the REAR POSITION and a time-out occurred.	SENSOR B18/C_PU_ER FILM PICK UP REAR is damaged.	• Enter the SERVICE MODE. • Manually actuate SENSOR B18. **Note** Check the MIRROR. • Trace the output signal on BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	115 VA missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

PROBLEM	CAUSE	ACTION
	MOTOR M6/C_PU CASSETTE FILM PICK UP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE FILM PICK UP backwards. • Trace the signal M_PU_R on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

A1 - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
The CASSETTE SUCKER BAR is not in the REAR POSITION.	The CASSETTE SUCKER BAR is in the wrong position. The CASSETTE SUCKER BAR was moved out of its back position by vibrations or manually.	Check the adjustment of SENSOR B18/ C_PU_ER.
	SENSOR B18/C_PU_ER does not detect that the CASSETTE SUCKER BAR CARRIAGE is in the REAR POSITION.	• Check that the reflective surface is clean. • Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually move the CASSETTE SUCKER BAR CARRIAGE to the REAR POSITION. • Trace the output signal from SENSOR B18/C_PU_ER on the BOARD A8, sheet 3. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

A2 - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER did not reach the SENSOR B15/C_OP_EO within 2 seconds after the CASSETTE OPENER MOTOR was started in the CASSETTE EMPTY POSITION.	The OPENER MECHANISM is blocked mechanically. It is most likely that the STOP PIN is too close to the STOP BOLT for OPENER DOWN.	Adjust the CASSETTE OPENER.
	SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is misadjusted.	Adjust the CASSETTE OPENER.

PROBLEM	CAUSE	ACTION
	MOTOR M5/OP CASSETTE does not move.	• Start the COMPONENT TEST and start the CASSETTE OPENER MOTOR in reverse direction. • Trace the signal M_C_OP_P on BOARD A8, sheet 5 and signal close on BOARD A8, sheet 5 and BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER BOARD A10/3 is damaged.	• Enter the SERVICE MOTOR. • Start MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.

A3 - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
If parameter CASSETTE OPEN RETURN is set to 01 an empty CASSETTE stays open at the end of the cycle. The CASSETTE OPENER stops at the CASSETTE EMPTY POSITION. If the OPENER did not reach this position within 2 seconds after the CASSETTE OPENER MOTOR was started, a time-out occurs.	MOTOR M5/C_OP CASSETTE OPENING does not run.	• Enter the SERVICE MODE. • Start the CASSETTE OPENER MOTOR in forward direction. • Trace the SIGNAL M_C_OP_F on BOARD A8, sheet 5 and signal OPEN on BOARD A8, sheet 5 and BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER A10/3 is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE OPENER forward/backward. • Trace the output signal of A10/3 on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.

A4 - CASSETTE CLOSING

PROBLEM	CAUSE	ACTION
The CASSETTE OPENER is not in the UPPER POSITION. This is tested at the beginning of the function.	The OPENER MECHANISM is blocked mechanically. It is most likely that the STOP PIN is too close to the STOP BOLT for OPENER DOWN.	Adjust the CASSETTE OPENER.
	SENSOR B15/C_OP_EO CASSETTE OPENER END SWITCH OPEN is misadjusted.	Adjust the CASSETTE OPENER.
	MOTOR M5/OP CASSETTE does not move.	• Start the COMPONENT TEST and start the CASSETTE OPENER MOTOR in reverse direction. • Trace the signal M_C_OP_P on BOARD A8, sheet 5 and signal close on BOARD A8, sheet 5 and BOARD A9. • Remove the damaged component and install a new component.
	ODOMETER BOARD A10/3 is damaged.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE OPENER forward/backward. • Trace the output signals of A10/3 on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.

A5 - MOVE HOLDING FINGER BACK

PROBLEM	CAUSE	ACTION
The HOLDING FINGER is not stopped at its FRONT END POSITION, or the pulse comparison between CASSETTE WIDTH DETECTION and the forward movement to the FRONT END POSITION failed.	There was no stop condition.	Check the mechanical linkage for any slip or interruption.
	MOTOR M3/C_HF HOLDING FINGER is not running.	• Enter the SERVICE MODE. • Start the MOTOR HOLDING FINGER forward and backward. • Trace the signals M_C_HF_F, forward, and M_C_HF_R, reverse, on the BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	The pulse comparison between forward and backward movement of the HOLDING FINGER is not correct.	Check the adjustment of the ODOMETER A10/1.

PROBLEM	CAUSE	ACTION
	ODOMETER A10/1 is damaged.	• Enter the SERVICE MODE. • Start MOTOR HOLDING FINGER forward/backward. • Trace the output signals on BOARD A8, sheet 1. **Note** To trace the COUNTING SIGNAL, a LOGIC PEN is a requirement. • Remove the damaged component and install a new component.
	There is a mechanical defect.	
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X48 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE 1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

A6 - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
The CASSETTE CENTERING BARS did not reach the open position and a time-out occurred.	The CENTERING BARS do not move to the center.	• Check if the DRIVE GEAR at the CENTERING MOTOR is broken. • Install a new white DRIVE GEAR 9221850.
	The CENTERING BARS do not move to the open position.	If the TIMING BELT tension is too high loosen the tension.
	SENSOR B10/C_CE_EO CENTERING BARS END SWITCH OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually operate SENSORS B10. • Trace the output on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M4/C_CE CASSETTE CENTERING is not running.	• Enter the SERVICE MODE • Start the MOTOR CENTERING CASSETTE. • Trace the signal M_C_CE_C on BOARD A8, sheet 7. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWERS SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	There is a mechanical defect.	

A7 - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
The INPUT FLAP was not closed and a time-out occurred.	Sensor B3/C_IF_EO CASSETTE INPUT FLAP END SWITCH OPEN is out of adjustment.	Adjust SENSOR B3. **Note** It is not necessary to take off the FRONT PANEL. SENSOR B3 can be adjusted from the CASSETTE TRANSPORT AREA.
	SENSOR B3/C_IN_EO CASSETTE INPUT FLAP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – Fuse F1 in the POWER SUPPLY. – INTERLOCK SYSTEM, RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

PROBLEM	CAUSE	ACTION
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal MC_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

A8 - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
During feed out the CASSETTE did not actuate SENSOR B2/C_IN_R CASSETTE REGISTRATION or the INPUT FLAP was not opened.	The CASSETTE stuck during feed out. This problem occurs most likely when an empty this means open CASSETTE is returned. The problem is caused by curved CASSETTES.	Put the CASSETTE aside.
	No CASSETTE was fed in.	
	The Cassette is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B2/C_IN_R CASSETTE REGISTRATION is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B2. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2 CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal MC_C_IF on BOARD A8 sheet 7. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	SENSOR B3/C_IN_EO CASSETTE INPUT FLAP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – Fuse F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. Relay K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

A9 - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
The CASSETTE is not fed out of the MULTILOADER.	The CASSETTE is mechanically blocked.	Remove the mechanical obstruction.
	At least 2 of the 3 CASSETTE END SWITCHES B5/C_IN_EL; B6 C_IN_EM B7/C_IN_ER are damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSORS B5, B6, B7. • Trace their output signals on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2/C_IN CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signalization M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.

AA - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
A6+A7 The CASSETTE CENTERING BARS did not reach the open position and the INPUT FLAP was not opened and a time-out occurred.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M4 CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE CENTERING backwards. • Check the signal M_C_CE_O. See BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B10/C_CE_EO CASSETTE CENTERING BARS OPENED is damaged.	• Enter the SERVICE MODE. • Manually actuate SENSOR B10. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	There is a mechanical defect.	
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B3/C_IN_EO CASSETTE INPUT FLOP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.

AB - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
A6 + A8 The CASSETTE CENTERING BARS did not reach the open position and during feed out the CASSETTE does not actuate SENSOR B2/C_IN_R CASSETTE REGISTRATION.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M4 CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE CENTERING backwards. • Check the signal M_C_CE_O. See BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B10/C_CE_EO CENTERING BARS OPENED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B10. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	There is a mechanical defect.	
	SENSOR B2/C_IN_R CASSETTE REGISTRATION is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B2. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2 CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.

AC - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
A6 + A9 The CASSETTE CENTERING BARS did not reach the open position and the CASSETTE is not fed out of the MULTILOADER.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M4 CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE CENTERING backwards. • Check the signal M_C_CE_O on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B10/C_CE_EO CASSETTE CENTERING BARS OPENED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B10 • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	There is a mechanical defect.	
	The CASSETTE is mechanically blocked.	Remove the mechanical obstruction.
	At least 2 of the 3 CASSETTE END SWITCHES B5/C_IN_EL B6/C_IN_EM and B7/C_IN_ER are damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSORS B5, B6, B7. • Trace their output signals on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2/C_IN CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.

AD - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
A6+A7+A8 The CASSETTE CENTERING BARS did not reach the open position and the INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT MIDDLE RIGHT, and a time-out occurred and during feed out the CASSETTE does not actuate Sensor B2/C_IN_R CASSETTE REGISTRATION.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M4 CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE CENTERING backwards. • Check the SIGNAL M_C_CE_O on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B10/C_CE_EO CENTERING BARS OPENED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B10. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B3/C_IN_EO CASSETTE INPUT FLAP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	SENSOR B2/C_IN_R CASSETTE REGISTRATION damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B2. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2 CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE Input backwards. • Trace the signal M_C_IN_R from BOARD A8 sheet 5 to A9. • Remove the damaged component and install a new component.
	The CASSETTE is mechanically blocked.	Remove the mechanical obstruction.
	There is a mechanical defect.	

AE - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
A6 + A7 + A9 The CASSETTE CENTERING BARS did not reach the OPEN POSITION and the INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT MIDDLE RIGHT, and a time-out occurred and the CASSETTE is not fed out of the MULTILOADER.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. Relay K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M4 CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE CENTERING backwards. • Check the signal M_C_CE_O on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B10/C_CE_EO CASSETTE CENTERING BARS OPENED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B10. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B3/C_IN_EO CASSETTE INPUT FLOP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	The CASSETTE is mechanically blocked.	• Remove the mechanical obstruction.
	At least 2 of the 3 CASSETTE END SWITCHES B5/C_IN_EL, B6/C_IN_EM, and B7/C_IN_ER are damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSORS B5, B6, B7. • Trace their output signals on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	Motor M2/C_IN CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

AF - COMPLETE FEED OUT CYCLE

PROBLEM	CAUSE	ACTION
A7+A8 The INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT MIDDLE RIGHT, and a time-out occurred and during feed out the CASSETTE does not actuate Sensor B2/C_IN_R CASSETTE REGISTRATION.	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK System. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B3/C_IN_EO CASSETTE INPUT FLOP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace it's output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	There is a mechanical defect.	
	The CASSETTE is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B2/C_IN_R CASSETTE REGISTRATION damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B2. • Trace it's output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2 CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.
	No CASSETTE was fed in.	

B0 - MOVE HOLDING FINGER BACK

PROBLEM	CAUSE	ACTION
A7 + A9 The INPUT FLAP was not closed within 2 seconds after the CASSETTE actuated at least 2 of the 3 CASSETTE END SWITCHES, LEFT MIDDLE RIGHT, and a time-out occurred and the CASSETTE is not fed out of the ML 300.	115 V AC missing a BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal M_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	Sensor B3/C_IN_EO CASSETTE INPUT FLAP open is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace it's output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	There is a mechanical defect.	
	The CASSETTE is mechanically blocked.	Remove the mechanical obstruction.
	At least 2 of the 3 CASSETTE END SWITCHES B5/C_IN_EL, B6/C_IN_EM, and B7/C_IN_ER are damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSORS B5, B6, B7. • Trace their output signals on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2/C_IN CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.

B1 - DECENTER CASSETTE

PROBLEM	CAUSE	ACTION
The CASSETTE CENTERING BARS did not reach the open position and a time-out occurred.	The CENTERING BARS do not move to the center.	Check if the DRIVE GEAR at the CENTERING MOTOR is broken.
	The CENTERING BARS do not move to the open position.	• If the TIMING BELT tension is too high, loosen the tension.
	SENSOR B10/C_CE_EO CENTERING BARS END SWITCH OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually operate SENSORS B10. • Trace the output on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M4/C_CE CASSETTE CENTERING is not running.	• Enter the SERVICE MODE. Start the MOTOR CENTERING CASSETTE. • Trace the signal M_C_CE_C on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between Pin 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWERS SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	There is a mechanical defect.	

B2 - FEED OUT CASSETTE

PROBLEM	CAUSE	ACTION
During feed out the CASSETTE did not actuate SENSOR B2/C_IN_R CASSETTE REGISTRATION or the INPUT FLAP was not opened.	The CASSETTE stuck during feed out. This problem occurs most likely when an empty this means open CASSETTE is returned. The problem is caused by curved CASSETTES.	Put the CASSETTE aside.
	No CASSETTE was fed in.	
	The Cassette is mechanically blocked.	Remove the mechanical obstruction.

PROBLEM	CAUSE	ACTION
	SENSOR B2/C_IN_R CASSETTE REGISTRATION is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B2. • Trace the output signal on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2 CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start the MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.
	MOTOR M1/C_IF INPUT FLAP is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT FLAP. • Trace the signal MC_C_IF on BOARD A8, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B3/C_IN_EO CASSETTE INPUT FLAP OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B3. • Trace the output signal on BOARD A8, sheet 1. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A8.	• Check with a DVM for 115 V AC at CONNECTOR A8X49 between PIN 1 and 4. • If the voltage is missing, check the following: – Fuse F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. Relay K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

B3 - FEED OUT CASSETTE

PROBLEM	CAUSE	ACTION
The CASSETTE END SWITCHES are still actuated after trying to feed out CASSETTE.	The CASSETTE is mechanically blocked.	• Remove the mechanical obstruction.
	At least 1 of the 3 CASSETTE END SWITCHES B5/C_IN_EL, B6/C_IN_EM, and B7/C_IN_ER is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSORS B5, B6, B7. • Trace their output signals on BOARD A8, sheet 2. • Remove the damaged component and install a new component.
	MOTOR M2/C_IN CASSETTE INPUT is not running.	• Enter the SERVICE MODE. • Start MOTOR CASSETTE INPUT backwards. • Trace the signal M_C_IN_R from BOARD A8, sheet 5 to A9. • Remove the damaged component and install a new component.

D0 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
The SYSTEM-TASK received a wrong ID number.	A software problem occurred.	Press “CLEAR” and start again.
	The POWER SUPPLY is damaged. XML 300 / ML 2000:	• Check the voltages on BOARD A1, A3/1 and A3/2. • ML 7000: Check the voltages on BOARD A1, A4 and A8.

D2 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred - job does not exist.		Press “CLEAR” and start again.

D3 - INTERNAL ERRORS OF CASSETTE TASK

PROBLEM	CAUSE	ACTION
A software problem occurred - parameter not OK.		Press “CLEAR” and start again.

D4 - INTERNAL ERRORS OF CASSETTE-TASK BLANK

PROBLEM	CAUSE	ACTION
After Power On / Reset: no ID received from CASSETTE UNIT but expected.	Software problem.	Press “CLEAR” and start again.
	Power fail at BOARD A8.	Check all voltages at BOARD A8.

PROBLEM	CAUSE	ACTION
	No OPERATING SOFTWARE on BOARD A8. Status-LED on BOARD A8 will blink with a fast constant frequency.	Do a CASSETTE UNIT software download.
	RS232 INTERFACE between BOARD A1 or A8 does not work.	• Check if CABLE is plugged in correctly. • Check if CABLE is damaged. • BOARD A1 might be damaged. • BOARD A8 might be damaged.

D5 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred - wrong message received for the last command.		Press “CLEAR” and start again.

D7 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A non-existing CASSETTE SIZE was detected.	A CASSETTE turned by 90 degrees, for example 24x30 was inserted.	Explain to the operator.
	ODOMETER A10/1, CASSETTE WIDTH, or ODOMETER A10/2, CASSETTE LENGTH, is out of adjustment.	• Start the SERVICE SOFTWARE. • Select CASS SIZE DETECTION from the COMPONENT TEST. • Insert a CASSETTE with known, this means measured, outside dimensions. • See if the displayed result for length or width is not correct. • If the length is not correct, go to CHANGE PARAMETERS and do the procedure for CASSETTE LENGTH. • Adjust the ODOMETER in question.

PROBLEM	CAUSE	ACTION
	ODOMETER A10/1, CASSETTE WIDTH, or ODOMETER A10/2, CASSETTE LENGTH, is damaged.	• Start the SERVICE SOFTWARE. • Select CASS SIZE DETECTION from the COMPONENT TEST. • Insert a CASSETTE with known, this means measured, outside dimensions. • See if the displayed result for length or width is not correct. • Check the ODOMETER in question. • Remove the damaged component and install a new component. **Note** The SENSOR TEST monitors the signal for the direction only. The COUNT SIGNAL can only be monitored with a LOGIC PEN.
	The TIMING BELT tension of ODOMETER A10/1 or ODOMETER A10/2 is too high.	Loosen the tension.

D9 - INTERNAL ERRORS OF CASSETTE TASK

PROBLEM	CAUSE	ACTION
The installed OPERATING SOFTWARE is damaged.		Reload a compatible Cassette Unit Software Version with the LAPTOP.

DB - INTERNAL ERRORS OF CASSETTE TASK

PROBLEM	CAUSE	ACTION
The software version of the SYSTEM UNIT is not compatible with the software version of the CASSETTE UNIT.	The software is not loaded correctly.	Reload the OPERATING SOFTWARE of the MULTILOADER/ MINILOADER.

DC - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a software communication problem. A software problem occurred.		

DF - INTERNAL ERRORS OF CASSETTE TASK

PROBLEM	CAUSE	ACTION
The TOP COVER of the MULTILOADER/MINILOADER is not closed.	The TOP COVER is not engaged properly.	

PROBLEM	CAUSE	ACTION
	The ACTUATOR of the TOP COVER INTERLOCK is not adjusted correctly.	Adjust the ACTUATOR that SENSOR B23/C_TCI is actuated safely.
	SENSOR B23/C_TCI TOP COVER INTERLOCK is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B23. • Trace the output signal on BOARD A8, sheet 4. • Remove the damaged component and install a new component.

F0 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F1 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem. RS232 INTERFACE SIGNAL DSR is not ready.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1 or A3/A8, ML 7000: A8. The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE-INTERFACE BOARD could be damaged. CONNECTOR X1 BOARD A1 to X33, BOARD A8.	

F2 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred. Command does not exist.		Press “CLEAR” and start again.

F3 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem. No response from UNIT but expected.	Software problem.	Reset the MULTILOADER/ MINILOADER and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be damage or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

F4 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be damaged, or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

F5 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Reset the MULTILOADER/ MINILOADER and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be damaged, or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

F6 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Reset the MULTILOADER/ MINILOADER and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be damaged, or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

F7 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem. Could not send ACK.	Software problem.	Reset the MULTILOADER/ MINILOADER and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be damaged, or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

F9 - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

FA - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Press “CLEAR” and start again.

FD - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Reset the MULTILOADER/ MINILOADER and start again.
	Hardware problem. The following BOARDS could be defective: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS-232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be defective, or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

FE - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Reset the MULTILOADER/ MINILOADER and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARDS A3/ A8 (ML 7000: BOARD A8). The RS232 CABLE between the MASTER PROCESSOR A1 and the CASSETTE INTERFACE BOARD could be damaged, or CONNECTOR X1 BOARD A1 to X33 BOARD A8.	

FF - INTERNAL ERRORS OF CASSETTE-TASK

PROBLEM	CAUSE	ACTION
CES set the MULTILOADER/ MINILOADER to the inoperative mode.		

Error Code Descriptions: Magazine

92 - MOVE POCKET TO HOME POSITION

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR is not in the MID POSITION.	MAGAZINE SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B56/M_PU_EF or B57/ M_PU_M or B58/M_PU_ER is damaged. These 3 SENSORS are mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Find out which SENSOR is damaged. • Trace the output from the damaged SENSOR through BOARDS A5 and A4 to the SLAVE PROCESSOR A3/ 2. • Remove the damaged component and install a new component.
	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.

93 - MOVE POCKET TO HOME POSITION

PROBLEM	CAUSE	ACTION
The FILM POCKET did not reach the HOME POSITION and a time-out occurred.	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE40 + 30 V. • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Transport the FILM POCKET with the DIAGNOSTICS PROGRAM to various LEVELS. If it does not move correctly, the problem might be caused by: a damaged STEPPER MOTOR, a damaged BOARD A4, and XML 300/ML 2000 only: a damaged SLAVE PROCESSOR BOARD A3/2.
	The FILM POCKET is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B30/M_PO_HP HOME POSITION is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B30. • Trace the output on BOARD A4, sheet 1.

94 - OPEN MAGAZINES

PROBLEM	CAUSE	ACTION
Time-Out during opening MAGAZINES. ML 7000: Following error on MSM problem or communication error MAG. UNIT MSM. Refer to MSM error code for details. ML 2000 / XML 300: SENSOR B36/M_OP_ED MAGAZINE OPENING END SWITCH is not actuated.	SENSOR B36/M_OP_EO MAGAZINE OPENING END SWITCH damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B36. • Trace output signal on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M14/M_OP MAGAZINE OPENING MECHANISM is not running.	• Enter the SENSOR MODE. • Start the MOTOR MAGAZINE OPENING to open the MAGAZINES. • Trace the signal M_M_OP_O open on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	The MAGAZINE is damaged.	
	There is a mechanical defect.	

95 - MOVE POCKET TO MOVE OUT_POSITION IN THE MAGAZINE

PROBLEM	CAUSE	ACTION
The FILM POCKET did not reach the "MOVE OUT POSITION IN THE MAGAZINE" in the correct time and a time-out occurred.	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE40 + 30 V. • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET with the DIAGNOSTICS PROGRAM to various LEVELS. • If it does not move correctly the problem might be caused by: a damaged STEPPER MOTOR, a damaged BOARD A4, and XML 300 / ML 2000 only: a damaged SLAVE PROCESSOR BOARD A3/2.
	The FILM POCKET is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B32/M_PO_ML MAGAZINE LEVEL is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B32. • Trace the output signal on BOARD A4, sheet 1. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

96 - MOVE POCKET TO A MAGAZINE LEVEL

PROBLEM	CAUSE	ACTION
The FILM POCKET did not reach the SELECTED MAGAZINE LEVEL in the correct time and a time-out occurred.	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE40 + 30 V • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET to various LEVELS. **Note** If it does not move correctly, the problem might be caused by a damaged STEPPER MOTOR, damaged BOARD A4, or a damaged SLAVE PROCESSOR BOARD A3/2.

PROBLEM	CAUSE	ACTION
	The FILM POCKET is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B32/M_PO_ML MAGAZINE LEVEL is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B32. • Trace the output SIGNAL on BOARD A4, sheet 1. • Remove the damaged component and install a new component.

97 - MOVE POCKET TO A MAGAZINE LEVEL

PROBLEM	CAUSE	ACTION
The actual position of the FILM POCKET is unknown.	A cycle was aborted before the FILM POCKET reached a known position. If now the same function is started this problem will occur. In this case the FILM POCKET is brought back to its HOME POSITION.	

98 - MOVE POCKET TO A MAGAZINE LEVEL

PROBLEM	CAUSE	ACTION
ML 7000: The MAGAZINE DRAWER is not in the unload position on time while the FILM POCKET moves to the MAGAZINE LEVEL. Following error on MSM problem or communication error Mag.Unit - MSM. Refer to MSM error code for details. XML 300: The FILM POCKET reached the END SWITCH but not the CASSETTE LEVEL.	Adjustment of SENSOR B31/ M_PO_ES, END SWITCH, in relation to SENSOR B32/M_PO_ML, MAGAZINE LEVEL, is not correct. This means B31 became actuated before B32.	Adjust the MAGAZINE LEVELS and the UPPER/LOWER END POSITION. Sensor B31 must be actuated after SENSOR B32.
	SENSOR B31/M_PO_ES END SWITCH damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B31. • Trace the output signal of SENSOR B31 from BOARD A5 through A4, sheet 1. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	SENSOR B32/M_PO_ML MAGAZINE LEVEL is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B32. • Trace the output signal of SENSOR B32 from BOARD A5 through A4, sheet 1. • Remove the damaged component and install a new component.
	Wrong values are stored in the MEMORY.	Do a FILM POCKET SCAN RUN.

99 - MOVE POCKET TO A MAGAZINE LEVEL

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR is not in the MID POSITION.	SENSOR B56/M_PU_EF or B57 M_PU_M or B58/M_PU_ER is damaged. These 3 SENSORS are mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Find out which SENSOR is damaged. • Trace the output from the damaged SENSOR through BOARDS A5 and A4. • Remove the damaged component and install a new component.
	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.

9A - MOVE POCKET SUCKER BAR TO FRONT POSITION

PROBLEM	CAUSE	ACTION
A loaded MAGAZINE is indicated as empty.	The MAGAZINE is really empty.	
	SENSOR B60/M_PU_E MAGAZINE EMPTY is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B60. • Trace the output signal on BOARD A4, sheet 1. • Remove the damaged component and install a new component.
	The MIRROR in the FILM POCKET is dirty.	Clean the MIRROR.
	The SENSOR B30 adjustment is not correct.	Do the adjustment procedure.

9B - MOVE POCKET SUCKER BAR TO FRONT POSITION

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR did not reach the PICK UP POSITION and a time-out occurred.	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.
	The FILM POCKET SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	The FILM POCKET is too high or too low.	• Do a scan run to assure that the scan parameters are OK. • If problem persists: Adjust the position of the MAGAZINE LEVEL BRACKET. • ML 7000: If MAGAZINE LEVEL position is wrong, adjust Sensor B107/Precise detection.
	MAGAZINE SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M15/M_PU MAGAZINE PICK UP is not running.	• Enter the SERVICE MODE. • Start the MOTOR MAGAZINE PICK UP forward and reverse. • Trace the signals M_M_PU_F, forward, and M_M_PU_R, reverse, on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B56/M_PU_EF or B57/ M_PU_M OR B58/M_PU_ER is damaged. These 3 SENSORS are mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Find out which SENSOR is damaged. • Trace the output from the damaged SENSOR through BOARD A5 and A4. • Remove the damaged component and install a new component.
	The FILM POCKET is mechanically blocked. For example by the BLOWPIPES.	Remove the mechanical obstruction.

9C - MAGAZINE FILM PICK UP

PROBLEM	CAUSE	ACTION
The FILM POCKET did not reach the "MOVE OUT POSITION IN THE MAGAZINE" in the correct time and a time-out occurred.	SENSOR B32/M_PO_ML MAGAZINE LEVEL is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B32. • Trace the output signal on BOARD A4, sheet 1. • Remove the damaged component and install a new component.
	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE40 + 30 V. • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET to various LEVELS. • If it does not move correctly the problem might be caused by: a damaged STEPPER MOTOR, a damaged BOARD A4, a damaged SLAVE PROCESSOR BOARD A3/2.
	The FILM POCKET is mechanically blocked.	Remove the mechanical obstruction.
	ML 7000 only: SENSOR B107 / Precise Position is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B32. • Trace the output signal on BOARD A4. • Remove the damaged component and install a new component.

9D - MAGAZINE FILM PICK UP

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR is in the FILM PICK UP POSITION in the MAGAZINE but could not go deep enough to reach the film.	The MAGAZINE SUCKER BAR did not tilt. In this case SENSOR B61/ M_PU_FS FILM AT SUCKER BAR is not actuated when the top film is reached.	• Check if the SOLENOID CABLE is broken. Install Mod 26. • Check if the E-RING at the SOLENOID Y14 SUCKER BAR TILTING is broken. • If necessary, install a new E-RING.
	SENSOR B61/M_PU_FS FILM AT SUCKER BAR is out of adjustment. The SENSOR is not actuated when the top film is reached.	Adjust SENSOR B61.

PROBLEM	CAUSE	ACTION
	The MAGAZINE SUCKER BAR is not tilted.	• Enter the SERVICE MODE. • Energize SOLENOID Y14/M_PU MAGAZINE SUCKER BAR TILTING. • Trace SIGNAL Y_M_PU from BOARD A4 sheet 6 to A4 sheet 1 and to A5 sheet 1 and 2. • Remove the damaged component and install a new component.
	MAGAZINE BLOWPIPES ride on the MAGAZINE.	Dot the adjustment for the FILM POCKET.
	SENSOR B61/M_PU_FS FILM AT SUCKER BAR does not recognize the top film.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Trace the output signal of SENSOR B61 from BOARD A5 through A4, sheet 1. • Check the RIBBON CABLE. • Remove the damaged component and install a new component.
	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE30 + 5 V • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET to various LEVELS. • If it does not move correctly, the problem might be caused by a damaged STEPPER MOTOR, a damaged BOARD A4; XML 300 / ML 2000, a damaged SLAVE PROCESSOR BOARD A3/2.

9E - MAGAZINE FILM PICK UP

PROBLEM	CAUSE	ACTION
The film is still at the SUCKERS of the FILM POCKET SUCKER BAR even after air was blown into the SUCKERS.	The RIBBON CABLE is broken.	
	The SUCKERS are tacky.	Clean the SUCKERS.
	SENSOR B61/M_PU_FS FILM at SUCKER BAR is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B61. • Trace the output signal on BOARD A4, sheet 1.

PROBLEM	CAUSE	ACTION
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT PANEL are closed.
	COMPRESSOR M16/M_CP is not running.	• Enter the SERVICE MODE. • Start the COMPRESSOR. • Trace the signal M_M_CP on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	SOLENOID VALVE Y10/M_PU_BS MAGAZINE BLOW SUCKERS is not working.	• Enter the SERVICE MODE. • Energies SOLENOID VALVE Y10. • Trace the signal Y_M_PU_BS on BOARD A4, sheet 6. • Remove the damaged component and install a new component.

9F - MAGAZINE FILM PICK UP

PROBLEM	CAUSE	ACTION
The FILM POCKET SUCKER BAR lost the film after it was picked up from the MAGAZINE.	No vacuum available.	• Check for a leakage in the vacuum system. Check it for all positions of the FILM POCKET. • Check SOLENOID Y12/M_PU_S MAGAZINE SUCKING for correct operation.
	The SUCKERS did not reach the top film in the MAGAZINE.	• Check the adjustment of SENSOR B61/M_PU_FS FILM AT SUCKER BAR. • If necessary, increase the value of PARAMETER ADDITIONAL STEPS. This checks that the SUCKERS are pressed correctly onto the top film so that the vacuum can be built up.

PROBLEM	CAUSE	ACTION
	SENSOR B61/M_PU_FS FILM AT SUCKER BAR does not recognize the film.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Trace the output signal of SENSOR B61 from BOARD A5 through A4, sheet 1. • Check the RIBBON CABLE. • Remove the damaged component and install a new component.
	No airflow through the MAGAZINE BLOW PIPES.	Clean the hole/slit of the MAGAZINE BLOW PIPES.
	Film lost due to high humidity.	Check the site.
	The VACUUM SYSTEM is not tight.	Check for a leakage and install any new parts if necessary.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT PANEL are closed.
	COMPRESSOR M16/M_CP is not running. At this time M16 is used as a VACUUM PUMP.	• Enter the SERVICE MODE. • Start the COMPRESSOR. • Trace the signal M_M_CP on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	SOLENOID VALVE Y12/M_PU_S MAGAZINE SUCKING is damaged.	• Enter the SERVICE MODE. • Start the SOLENOID VALVE MAGAZINE SUCKING. • Trace signal Y_M_PU_S on BOARD A4, sheet 6. • Remove the damaged component and install a new component.

PROBLEM	CAUSE	ACTION
	SOLENOID VALVE Y10/M_PU_BS MAGAZINE BLOW INTO SUCKERS is damaged. If this SOLENOID is energized all the time or if it is mechanically damaged and stays open no VACUUM can be build up in the MAG. SUCKERS.	• Enter the SERVICE MODE. • Energize SOLENOID BLOW INTO SUCKERS. • Trace signal Y_M_PU_BS on BOARD A8, sheet to find out if Y10 stays energized all the time. • Remove the damaged component and install a new component.
	SENSOR B60/M_PU_E MAGAZINE EMPTY is damaged. In this case the SUCKER BAR tries to pick up a film from an empty MAGAZINE.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B60. • Trace the output signal on BOARD A4, sheet 1. • Remove the damaged component and install a new component.

A0 - MAGAZINE FILM PICK UP

PROBLEM	CAUSE	ACTION
A DOUBLE FILM CONDITION is recognized and the MAGAZINE UNIT could not try to pick the film again up to 3 times because another UNIT failed.		Refer to the Error Codes of the other UNITS.

A1 - MOVE POCKET SUCKER BAR TO REAR POSITION

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR did not reach the REAR POSITION and a time-out occurred.	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.
	There is a mechanical defect.	
	MAGAZINE SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

PROBLEM	CAUSE	ACTION
	MOTOR M15/M_PU MAGAZINE PICK UP is not running.	• Enter the SERVICE MODE. • Start the MOTOR MAGAZINE PICK UP forward and reverse. • Trace the signals M_M_PU_F, forward, and M_M_PU_R, reverse, on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	SENSOR B58/M_PU_ER FILM PICK UP REAR END SWITCH is damaged. This SENSORS is mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B58. • Trace the output signal through BOARDS A5 and A4. • Remove the damaged component and install a new component.

A2 - MOVE POCKET SUCKER BAR TO MIDDLE POSITION

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR did not reach the PICK UP POSITION and a time-out occurred.	SENSOR B57/M_PU_M is damaged. This SENSOR is mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B57. • Trace the output signal through BOARDS A5 and A4. • Remove the damaged component and install a new component.
	MAGAZINE SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

PROBLEM	CAUSE	ACTION
	MOTOR M15/M_PU MAGAZINE PICK UP is not running.	• Enter the SERVICE MODE. • Start the MOTOR MAGAZINE PICK UP forward and reverse. • Trace the signals M_M_PU_F, forward, and M_M_PU_R, reverse, on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.

A3 - MAGAZINE CLOSING

PROBLEM	CAUSE	ACTION
ML 7000: The MAGAZINE was not closed on time after unexposed film was loaded in cassette. Following error on MSM problem or communication error Mag.Unit - MSM. Refer to MSM error code for details. ML 2000 / XML 300: SENSOR B36/M_OP_ED MAGAZINE OPENING END SWITCH is not actuated.	SENSOR B37 /M_OP_EC MAGAZINE CLOSING END SWITCH damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B37. • Trace the output from SENSOR B37 on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M14/M_OP MAGAZINE OPENING MECHANISM is not running.	• Enter the SERVICE MODE. • Start the MOTOR MAGAZINE OPENING to open the MAGAZINES. • Trace the signal M_M_OP_O Open on BOARD A4, sheet 7. • Remove the damaged component and install a new component.

A4 - BLOW DOWN FILM

PROBLEM	CAUSE	ACTION
The film is still at the SUCKERS of the FILM POCKET SUCKER BAR even after air was blown into the SUCKERS.	No air is blown through the SUCKERS.	• Take out the blue SCREW from SOLENOID VALVE Y10/ M_PU_BS MAGAZINE BLOW SUCKER and run a few cycles with the SCREW out. It is possible that small particles are in the SOLENOID VALVE and they are blown out during a few cycles without the blue SCREW. Insert the SCREW.
	SOLENOID VALVE Y10/M_PU_BS MAGAZINE BLOW SUCKERS is not working.	• Enter the SERVICE MODE. • Energies SOLENOID VALVE Y10. • Trace the signal Y_M_PU_BS on BOARD A4, sheet 6. • Remove the damaged component and install a new component.
	The SUCKERS are tacky.	Clean the SUCKERS.

A5 - MOVE POCKET SUCKER BAR TO MIDDLE POSITION

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR did not reach the MIDDLE POSITION and a time-out occurred.	SENSOR B57/M_PU_M is damaged. This SENSOR is mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B57. • Trace the output signal through BOARDS A5 and A4. • Remove the damaged component and install a new component.
	MAGAZINE SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.

PROBLEM	CAUSE	ACTION
	MOTOR M15/M_PU MAGAZINE PICK UP is not running.	• Enter the SERVICE MODE. • Start the MOTOR MAGAZINE PICK UP forward and reverse. • Trace the signals M_M_PU_F, forward, and M_M_PU_R, reverse, on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.

A6 - BLOW DOWN FILM

PROBLEM	CAUSE	ACTION
The fresh film was picked up in the MAGAZINE but it was not at the MAGAZINE SUCKERS when the FILM POCKET reached the CASSETTE.	The film was stripped of from the SUCKERS when it was pulled out of the MAGAZINE.	
	Sensor B61/M_PU_FS is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR B61. • Trace the output signal of SENSOR B61 from BOARD A5 through A4, sheet 1. • Remove the damaged component and install a new component.

A7 - MAGAZINE CLOSING

PROBLEM	CAUSE	ACTION
ML 7000 only: Error during driving back MAGAZINE to reference pos. Following error on MSM problem.		Refer to MSM error code for details.

B0 - POCKET SCAN RUN

PROBLEM	CAUSE	ACTION
MAGAZINE LEVEL VALUE out of range. This problem can only occur in the SERVICE MODE after a SCAN RUN.	The LEVEL BRACKETS are in the wrong position.	Do the adjustment for the MAGAZINE LEVEL.

PROBLEM	CAUSE	ACTION
	SENSOR B32/M_PO_ML MAGAZINE LEVEL does not detect all MAGAZINE LEVELS.	Make sure that the LEVEL BRACKETS interrupt SENSOR B32.
	SENSOR B32/M_PO_ML MAGAZINE LEVEL is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Trace the output signal of SENSOR B32 from BOARD A7 through BOARD A5 and BOARD A4, sheet 1. • Remove the damaged component and install a new component.

B1 - POCKET SCAN RUN

PROBLEM	CAUSE	ACTION
A FILM POCKET time-out occurred during the FILM POCKET SCAN RUN.	SENSOR B32/M_PO_ML MAGAZINE LEVEL is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B32. • Trace the output signal on BOARD A4, sheet 1. • Remove the damaged component and install a new component.
	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VEP12 + 5 V, VPE40 + 30 V. • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET to various LEVELS. • If it does not move correctly, the problem might be caused by: a damaged STEPPER MOTOR, a damaged BOARD A4, a damaged SLAVE PROCESSOR BOARD A3/2.
	The FILM POCKET is mechanically blocked.	Remove the mechanical obstruction.

B3 - POCKET SCAN RUN

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR is not in the MID POSITION.	MAGAZINE SUCKER BAR is mechanically blocked.	Remove the mechanical obstruction.
	SENSOR B57/M_PU_M is damaged. This SENSOR is mounted on BOARD A5.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B57. • Trace the output signal through BOARD A5 and A4. • Remove the damaged component and install a new component.
	The FILM POCKET TIMING DISKS are out of adjustment.	Do the adjustment procedure.

B7 - MOVE POCKET DOWN TO FILM

PROBLEM	CAUSE	ACTION
The MAGAZINE SUCKER BAR is in the FILM PICK UP POSITION in the MAGAZINE but could not go deep enough to reach the film, Service Mode only.	MAGAZINE BLOWPIPES ride on the MAGAZINE.	Do the adjustment for the FILM POCKET.
	SENSOR B61/M_PU_FS FILM AT SUCKER BAR not recognize the top film.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Trace the output signal of SENSOR B61 from BOARD A5 through BOARD A4, sheet 1. • Check the RIBBON CABLE. • Remove the damaged component and install a new component.
	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE30 + 30 V. • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET to various LEVELS. • If it does not move correctly the problem might be caused by: a damaged STEPPER MOTOR or its DRIVER BOARD A4.

C1 - ERRORS DURING CYCLE.

PROBLEM	CAUSE	ACTION
A time-out occurred during BLOW INTO CASSETTE.	This is a software problem. Another problem occurred before in the CASSETTE UNIT.	

C2 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
There is no MAGAZINE available for the detected CASSETTE SIZE.	The desired MAGAZINE is not in.	• Insert the requested MAGAZINE and explain to the operator.
	ML 7000 / XML 300 only: False detection of the CASSETTE TYPE.	• Adjust the TYPE 2 SENSORS B21/ C_T2_L and B22/C_T2_R. • Check that they are not triggered by a CASSETTE without reflective stickers.
	The reflective stickers, for CASSETTE TYPE, on the CASSETTE are not recognized by the TYPE 2 SENSORS B21//C_T2_L or B22/C_T2/R.	• Check the position of reflective stickers. • Install new stickers if damaged. • Adjust the TYPE 2 SENSORS.

C3 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
Selected MAGAZINE is empty.	The MAGAZINE is empty.	Explain the operator how to use NEARLY EMPTY.
	MAGAZINE is not empty.	• Adjust SENSOR B60/M_PU_E MAGAZINE EMPTY. SENSOR B60 and MIRROR in the FILM POCKET has to be aligned correctly so that the infrared beam points to the center of the reflective sticker in the MAGAZINE.

C4 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
MAGAZINE is not opened.	The MAGAZINE is not inserted correctly.	
	There is a mechanical defect.	
	MAGAZINE CLOSED DETECTOR B43/M_CD_1 or B49/M_CD_2 or B55/ M_CD_3 is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR of the selected MAGAZINE. • Trace the output signal through BOARD A6 and A4 sheet 3. • Remove the damaged component and install a new component.

C5 - ERRORS DURING CYCLE.

PROBLEM	CAUSE	ACTION
A time-out occurred during BLOW INTO CASSETTE.	This is a software problem. Another problem occurred before in the CASSETTE UNIT.	

C6 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
A DOUBLE FILM is 3 times detected in a cycle.	Films stick together in the MAGAZINE.	Riffle the films.
	Water was blown between the films.	Install Mod 20.
	PROBLEMS WITH THE MAGAZINE BLOW PIPES.	• Check that the BLOW PIPES are not clogged. Clean the hole/slit. • Check the BLOW PIPE position in relation to the MAGAZINE SUCKERS. • Adjust them if necessary.
	Double Sheet detection misadjusted.	• Check for correct position of DETECTOR ROLLERS when engaged. • Check SENSOR ADJUSTMENT B59/ Double Sheet according to SERVICE MANUAL instructions.
	Double Sheet DETECTOR ROLLERS cannot catch film.	• Check for correct position of DETECTOR ROLLERS when engaged. • Check if FILM POCKET SOLENOID Y7/M_PU does tilt back quick enough or if movement is hesitating. In this case, the DOUBLE SHEET DETECTOR ARM might be engaged before the SUCKER BAR tilted back and missed the film.

C7 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
ML 7000: Film leading edge was not detected at B20/CPUVO before unloading fresh film from MAGAZINE. Another problem occurred earlier in the CASSETTE UNIT.		Refer to CASSETTE UNIT ERROR CODE.

C8 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The FILM POCKET did not reach the SERIAL UNLOAD MAGAZINE LEVEL on time.	STEPPER MOTOR M10/M_PO FILM POCKET is not running.	• Check the following voltages on BOARD A4, sheet 5: V CC + 5 V, VPE12 + 5 V, VPE40 + 30 V. • Enter the SERVICE MODE. • Start the STEPPER MOTOR. • Move the FILM POCKET to various LEVELS. • If it does not move correctly, the problem might be caused by a damaged STEPPER MOTOR, a damaged BOARD A4, a damaged SLAVE PROCESSOR BOARD A3/2.

C9 - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The MAGAZINE COVER is not closed before opening cassette flap.	The MAGAZINE is blocked by films.	Put the films correctly into the MAGAZINE.
	One of the MAGAZINE CLOSED DETECTION SENSORS is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR of the selected MAGAZINE. • Trace the output signal through BOARD A6 and A4 sheet 3. • Remove the damaged component and install a new component.
	SENSOR B37/M_PO_EC MAGAZINE CLOSING is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B37. • Trace the output signal on BOARD A4 sheet 2. • Remove the damaged component and install a new component.
	The reflective tape on the MAGAZINE cover for the closed detection is not present or damaged or at the wrong location.	

CA - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
ML 7000 only: Trailing edge of exposed film not recognized at B20/CPUVO before loading fresh film into cassette.	Another problem occurred earlier in the CASSETTE UNIT.	

D0 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
The SYSTEM-TASK received a wrong ID number.	A software problem occurred.	Press “CLEAR” and start again.
	The POWER SUPPLY is damaged.	Check the voltages on BOARDS A1, A3/A4 - ML 7000: A4.

D2 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D3 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D4 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
After Power On / Reset: no ID received from MAGAZINE UNIT but expected.	Software problem.	Press “CLEAR” and start again.
	Power Fail at BOARD A4.	Check all voltages at BOARD A4.
	RS232 Interface between BOARD A1 or A4 does not work.	• Check if CABLE is plugged in correctly. • Check if CABLE is damaged. • BOARD A1 might be damaged. • BOARD A4 might be damaged.

D5 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D9 - INTERNAL ERRORS OF MAGAZINE TASK

PROBLEM	CAUSE	ACTION
The OPERATING SOFTWARE is not loaded completely.		Reload the complete MAGAZINE UNIT OPERATING SOFTWARE with the LAPTOP.

DA - ERRORS DURING CYCLE

PROBLEM	CAUSE	ACTION
The MAGAZINE COVER is not closed at startup of the MULTILOADER/ MINILOADER or after RESET/ CLEAR.	The MAGAZINE is blocked by films.	Put the films correctly into the MAGAZINE.
	A MAGAZINE CLOSED DETECTION SENSOR is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate the SENSOR of the selected MAGAZINE. • Trace the output signal through BOARDS A6 and A4 sheet 3. • Remove the damaged component and install a new component.
	SENSOR B37/M_PO_EC MAGAZINE CLOSING is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B37. • Trace the output signal on BOARD A4 sheet 2. • Remove the damaged component and install a new component.
	ML 7000 only: MSM is in an undefined position and it is not clear if the cover is closed.	Refer to MSM error code.

DB - INTERNAL ERRORS OF MAGAZINE TASK

PROBLEM	CAUSE	ACTION
The software version of the SYSTEM UNIT is not compatible with the software version of the MAGAZINE UNIT.	The software is not loaded correctly.	Reload a compatible OPERATING SOFTWARE to the MULTILOADER / MINILOADER.
	BOARD A1 - MAIN PROCESSOR or BOARD A3/2 - SLAVE PROCESSOR MAGAZINE TASK - ML 7000: BOARD A4 is damaged.	Install a new BOARD and reload the OPERATING SOFTWARE.

DC - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Press “CLEAR” and start again.

DF - INTERNAL ERRORS OF CASSETTE TASK

PROBLEM	CAUSE	ACTION
The TOP COVER of the MULTILOADER / MINILOADER is not closed.	The TOP COVER is not engaged properly.	
	The ACTUATOR of the TOP COVER INTERLOCK is not adjusted correctly.	Adjust the ACTUATOR that SENSOR B23/C_TCI is actuated safely.
	SENSOR B23/C_TCI TOP COVER INTERLOCK is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B23. • Trace the output signal on BOARD A8, sheet 4. • Remove the damaged component and install a new component.

F0 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F1 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware communication problem.	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F2 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F3 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, (ML 7000: BOARD A4). The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F4 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, (ML 7000: BOARD A4). The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F5 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged. BOARD A1, BOARD A3/2, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F6 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F7 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 on BOARD A1 to X29 BOARD A4.	

F8 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F9 - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

FA - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Reset the MULTILOADER / MINILOADER and start again.

FD - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

FE - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, BOARD A3/2, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

FF - INTERNAL ERRORS OF MAGAZINE-TASK

PROBLEM	CAUSE	ACTION
CES set the MULTILOADER / MINILOADER to the inoperative mode.		

Error Code Descriptions: Interface

C2 - FILM TO PROCESSOR

PROBLEM	CAUSE	ACTION
FILM LEADING EDGE not recognized in the FILM CHUTE.	The film is found in the FILM POCKET AREA. This problem is caused by a misadjusted INTERFACE FLAP. This means the INTERFACE FLAP is closed when it should be open.	Check the adjustment of SENSOR B33/ M_PI_F. The rib on the actuator wheel has to be vertical, plus maximum 5 degrees in direction of rotation, when the INTERFACE FLAP is closed.

PROBLEM	CAUSE	ACTION
	The film release did not open and the film is still in the chute: • film release blocked mechanically. • SENSOR B34/M_PI_R misadjusted.	
	The film came out or the leading edge did pass B35 but then was jammed by the film release. • SENSOR B35/M_PI_B misadjusted or damaged. • ML 7000 and XML 300 with new spare part BOARD A4: Jumpers for B35/M_PI_B set for wrong SENSOR style.	Refer to the SERVICE MANUAL.

C3 - FILM TO PROCESSOR

PROBLEM	CAUSE	ACTION
The FILM TRAILING EDGE is not recognized in the FILM CHUTE.	The TIMING BELT TENSION in the PROCESSOR INTERFACE is too high. This might slow down or even stop the STEPPER MOTOR PROCESSOR INTERFACE M13/M_PI.	Loosen the tension on the TIMING BELT.
	One of the 2 free running ONE-WAY CLUTCHES in the PROCESSOR INTERFACE are assembled wrong. If you pull a FILM through the PROCESSOR INTERFACE in direction of the PROCESSOR, the toothed BELT must not move. If it moves as you pull one of the free running ONE-WAY CLUTCHES is assembled wrong.	Install a new CLUTCH.
	There is a film jam in the PROCESSOR INTERFACE.	
	SENSOR B35/M_PI_EO FILM IN INTERFACE BOTTOM damaged.	• Enter the SERVICE MODE. • Start the COMPONENT TEST. • Manually actuate SENSOR B35. • Trace the output signal on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	ML 7000 and XML 300 with new spare part BOARD A4: Jumpers for B35/ M_PI_B set for wrong SENSOR style.	Refer to the SERVICE MANUAL.

PROBLEM	CAUSE	ACTION
	MOTOR M13/M_PI STEPPER MOTOR PROCESSOR INTERFACE is not running.	• Enter the SERVICE MODE. • Start the COMPONENT TEST. • Start STEPPER MOTOR PROCESSOR INTERFACE. • If the MOTOR is not running, the problem could be caused by a damaged BOARD A4, A3, or MOTOR M13. • Solve the problem by installing a new BOARD.
	The PROCESSOR has a malfunction.	Do the DIAGNOSTICS for the PROCESSOR.

C4 - CLOSE INTERFACE FLAP

PROBLEM	CAUSE	ACTION
The INTERFACE FLAP is not closed.	SENSOR B33/M_PI_IF INTERFACE FLAP CLOSED END SWITCH is misadjusted.	Adjust SENSOR B33/M_PI_F. The rib on the ACTUATOR WHEEL has to be vertical, plus maximum 5 degrees in direction of rotation, when the INTERFACE FLAP is closed.
	SENSOR B33/M_PI_F INTERFACE CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B33. • Trace the output signal on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M11/M_PI_F INTERFACE FLAP is not running.	• Enter the SERVICE MODE. • Start the COMPONENT TEST. • Start MOTOR INTERFACE FLAP. • Trace SIGNAL M_M_PI_F on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	There is a film jam.	

C5 - CLOSE FILM RELEASE

PROBLEM	CAUSE	ACTION
The FILM RELEASE in the FILM CHUTE is not closed.	The film is caught by the FILM RELEASE. Poor signal of SENSOR B35/M_PI_EO FILM IN INTERFACE BOTTOM, film trailing edge seen too early.	• Enter the SERVICE MODE. • Start the COMPONENT TEST. • Check signal with and without film. Be sure to set the jumper for the reference voltage as described in the manual. Use any kind of film that is run at the site. • Remove the damaged component and install a new component if the signal is bad.
	SENSOR B34/M_PI_R FILM RELEASE CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B34. • Trace the output signal on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M12/M_PI_R FILM RELEASE is not running.	• Enter the SERVICE MODE. • Start the COMPONENT TEST. • Start MOTOR M12. • Trace SIGNAL M_M_PI_R on BOARD A4, sheet 7. • Remove the damaged component and install a new component.

C6 - OPEN INTERFACE FLAP

PROBLEM	CAUSE	ACTION
The INTERFACE FLAP is not opened.	SENSOR B33/M_PI_F INTERFACE FLAP CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B33. • Trace the output signal on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	115 V AC missing at BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 4. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M11/M_PI_F is not running.	• Enter the SERVICE MODE. • Start MOTOR FILM RELEASE. • Trace the signal M_M_PI_R on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

C7 - FILM RELEASE

PROBLEM	CAUSE	ACTION
The FILM RELEASE in the FILM CHUTE is still closed.	SENSOR B34/M_PI_R FILM RELEASE CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B34. • Trace the output signal on BOARD A4, sheet 2. • Remove the damaged component and install a new component.
	115 V AC missing on BOARD A4.	• Check with a DVM for 115 V AC at CONNECTOR A4X28 between PIN 1 and 2. • If the voltage is missing, check the following: – FUSE F1 in the POWER SUPPLY. – INTERLOCK SYSTEM. RELAY K2 in the POWER SUPPLY will only be energized when the TOP COVER and the FRONT DOOR are closed.
	MOTOR M12/M_PI_R FILM RELEASE is not running.	• Enter the SERVICE MODE. • Start MOTOR M12. • Trace the signal M_M_PI_R on BOARD A4, sheet 7. • Remove the damaged component and install a new component.
	There is a mechanical defect.	

C8 - ML 7000 DARKROOM FILM FEEDER (DFF)

PROBLEM	CAUSE	ACTION
The DFF is not connected, although the parameter dff_present is set to “l”.	DFF is not connected to the ML 7000.	Connect the DFF if available. If no DFF is available, set the DFF parameter dff_present to “0”: • Enter the SERVICE MODE. • Go to CHANGE MULTILOADER DATE/CHANGE PARAMETER. • Set the parameter dff_present to “0”. • Store Parameters. • Exit SERVICE MODE.
	Input signal B62/DFF Present is defective on BOARD A4.	Install a new MAGAZINE INTERFACE BOARD A4.

D1 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D2 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D3 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D4 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
MAGAZINE UNIT did not send Unit-ID 1s after Power/Up Reset, therefore INTERFACE TASK cannot communicate as well. Usually appears with MA - D4.	Software problem.	Press “CLEAR” and start again.

D5 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

DC - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Press “CLEAR” and start again.

F0 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F1 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F2 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F3 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F4 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F5 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE_ INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F6 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F7 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE- INTERFACE BOARD could be damaged, or CONNECTOR X2 BOARD A1 to X29 BOARD A4.	

F8 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F9 - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

FA - INTERNAL ERRORS OF INTERFACE TASK

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Press “CLEAR” and start again.

FD - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE-INTERFACE BOARD could be damaged, or CONNECTOR A1X2 to A4X29.	

FE - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1, XML 300: BOARDS A3/A4, ML 7000: BOARD A4. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged, or CONNECTOR A1X2 to A4X29.	

FF - INTERNAL ERRORS OF INTERFACE-TASK

PROBLEM	CAUSE	ACTION
CES set the MULTILOADER / MINILOADER to the inoperative mode.		

Error Code Descriptions: Processor

01 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E001 - GPMC error.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

02 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E002 - DRYER OVER TEMPERATURE.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

03 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E003 - Loss of UFD LINK.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

04 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E004 - INOPERATIVE TRANSPORT.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

05 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E005 - LOSS OF AIR FLOW.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

06 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E006 - INIT. DEVICE ERROR.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

07 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E007 - DEVELOPER THERMISTOR FAILURE.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

08 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E008 - FIXER THERMISTOR FAILURE.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

09 - FATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E009 - DRYER THERMISTOR FAILURE.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

20 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E032 - DEVELOPER TANK FILL ERROR.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

21 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E033 - FIX TANK FILL ERROR.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

22 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E034 - UNABLE TO DETERMINE DEVELOPER TEMPERATURE.		• Do the PROCESSOR DIAGNOSTICS. • Press “CLEAR” and start again.

23 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E035 - UNABLE TO DETERMINE FIX TEMPERATURE.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

24 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E036 - UNABLE TO DETERMINE DRYER TEMPERATURE.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

25 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E037 - LOSS OF DEVELOPER HEATING ABILITY.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

26 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E038 - LOSS OF DEVELOPER COOLING ABILITY.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

27 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E039 - LOSS OF FIX HEATING ABILITY.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

28 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E040 - INOPERATIVE DRYER.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

29 - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E041 - LOSS OF TRANSPORT SPEED CONTROL.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

2A - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E042 - LOSS OF MULTILOADER DATA LINK.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

2B - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E043 - RTC/ STATIC RAM BATTERY FAILURE.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

2C - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E044 - DISPLAY RAM ERROR.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

2D - NONFATAL ERRORS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E045 - DISPLAY COMMUNICATION ERROR.		• Do the PROCESSOR DIAGNOSTICS. • Possible for customer to override.

80 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E128 - COVER NOT IN PLACE.		Possible for customer to override.

81 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E129 - TANKS CURRENTLY BEING FILLED.		Possible for customer to override.

82 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E130 - REPLENISH PUMPS DISABLED.		Possible for customer to override.

83 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E131 - LOW WATER WARNING.		Possible for customer to override.

84 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E132 - DEVELOPER UNDER SET TEMPERATURE.		Possible for customer to override.

85 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E133 - DEVELOPER OVER SET TEMPERATURE.		Possible for customer to override.

86 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E134 - DRYER UNDER SET TEMPERATURE.		Possible for customer to override.

87 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E135 - DEVELOPER REPLENISH WARNING.		Possible for customer to override.

88 - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E136 - FIX REPLENISH WARNING.		Possible for customer to override.

8D - WARNINGS OF PROCESSOR BLANK

PROBLEM	CAUSE	ACTION
E141 - LOW DEVELOPER TANK LEVEL.		Possible for customer to override.

8E - WARNINGS OF PROCESSOR

PROBLEM	CAUSE	ACTION
E142 - LOW FIXER TANK LEVEL.		Possible for customer to override.

D0 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
The SYSTEM-TASK received a wrong ID number.	A software problem occurred.	Press “CLEAR” and start again.
	The POWER SUPPLY is damaged.	Check the voltages on BOARD A1 and the PROCESSOR BOARD.

D2 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D3 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D4 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
The PROCESSOR did not send its Unit ID during Power-Up/Reset.	The PROCESSOR is not energized.	
	Power Fail on PROCESSOR BOARD.	Check all voltages of PROCESSOR BOARD - 500/5000 BOARDS.
	No OPERATING SOFTWARE installed on PROCESSOR.	Do a PROCESSOR software download.
	RS232 Interface between BOARD A1 and PROCESSOR does not work.	• Check if CABLE is plugged in correctly. • Check if CABLE is damaged. • BOARD A1 might be damaged. • PROCESSOR BOARD might be damaged.

D5 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D6 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D9 - INTERNAL ERRORS OF PROCESSOR TASK

PROBLEM	CAUSE	ACTION
The OPERATING software is not loaded completely.		Reload the correct PROCESSOR OPERATING SOFTWARE with the LAPTOP.

DB - INTERNAL ERRORS OF PROCESSOR TASK

PROBLEM	CAUSE	ACTION
The software version of the MASTER PROCESSOR is not compatible with the software version of the INTEGRATED PROCESSOR.	The software is not loaded correctly.	Reload the OPERATING SOFTWARE of the MULTILOADER and of the INTEGRATED PROCESSOR.
	BOARD A1, MASTER PROCESSOR, or BOARD 500/5000 of the PROCESSOR is damaged.	Install a new BOARD if damaged and reload the OPERATING SOFTWARE.

DD - INTERNAL ERRORS OF PROCESSOR TASK

PROBLEM	CAUSE	ACTION
No film detected.	It is a “normal” film jam.	• Pull out the PROCESSOR. • Remove the jammed film.
	• XML 300 - The PROCESSOR ENTRANCE DETECTOR SENSORS are damaged or not adjusted correctly. • XML 300 PLUS - The FILM DETECTOR SENSORS B25/B26 in the PROCESSOR INTERFACE are damaged or not adjusted correctly. • XML 7000 - The FILM DETECTOR SENSORS B36/B37 in the PROCESSOR INTERFACE are damaged or not adjusted correctly.	• Start the SENSOR test. • Check for correct setup and operation of the DETECTORS.
	There is a problem in the PROCESSOR INTERFACE. • The TIMING BELT TENSION in the PROCESSOR INTERFACE is too high. This might slow down or even stop the STEPPER MOTOR PROCESSOR INTERFACE M13/M_PI.	Loosen the tension on the TIMING BELT.

PROBLEM	CAUSE	ACTION
	1 of the 2 free running ONE-WAY CLUTCHES in the PROCESSOR INTERFACE are assembled wrong. If you pull a film through the PROCESSOR INTERFACE in direction of the PROCESSOR, the toothed BELT must not move. If it moves as you pull, 1 of the free running ONE-WAY CLUTCHES is assembled wrong.	Install a new CLUTCH.
	XML 300 only - A failure in the PROCESSOR occurred. The TRANSPORT MOTOR might be damaged.	Do the DIAGNOSTICS for the PROCESSOR.

DE - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
There is a film jam at the PROCESSOR INTERFACE AY or the PROCESSOR ENTRANCE.	It is a “normal” film jam.	• Pull out the PROCESSOR. • Remove the jammed film.
	• XML 300 - The PROCESSOR ENTRANCE DETECTOR SENSORS are damaged or not adjusted correctly. • XML 300 PLUS - The FILM DETECTOR SENSORS B25/B26 in the PROCESSOR INTERFACE are damaged or not adjusted correctly. • XML 7000 - The FILM DETECTOR SENSORS B36/B37 in the PROCESSOR INTERFACE are damaged or not adjusted correctly.	• Start the SENSOR test. • Check for correct setup and operation of the DETECTORS.
	There is a problem in the PROCESSOR INTERFACE. • The TIMING BELT TENSION in the PROCESSOR INTERFACE is too high. This might slow down or even stop the STEPPER MOTOR PROCESSOR INTERFACE M13/ M_PI.	Loosen the tension on the TIMING BELT.
	1 of the 2 free running ONE-WAY CLUTCHES in the PROCESSOR INTERFACE are assembled wrong. If you pull a film through the PROCESSOR INTERFACE in direction of the PROCESSOR, the toothed BELT must not move. If it moves as you pull, 1 of the free running ONE-WAY CLUTCHES is assembled wrong.	Install a new CLUTCH.
	The TRANSPORT MOTOR is damaged.	Run the DIAGNOSTICS for the PROCESSOR.

F0 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F1 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

F2 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F3 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

F4 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

F5 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

F6 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

F7 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

F8 - BLANK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F9 - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

FA - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Press “CLEAR” and start again.

FD - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

FE - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A1. The RS232 CABLE between the MASTER PROCESSOR A1 and the PROCESSOR could be damaged, or CONNECTOR A1X3 to PROCESSOR.	

FF - INTERNAL ERRORS OF PROCESSOR-TASK

PROBLEM	CAUSE	ACTION
CES set the MULTILOADER to the inoperative mode.		

Error Code Descriptions: Mag Shuttle

B6 - MOVING MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
Drive Home Error MSM could not reach reference position. Time-out while driving the MAGAZINE SHUTTLE to home position.	DRIVE MOTOR does not move: • No DC voltage available. • Check voltage. • DRIVE MOTOR damaged.	
	SENSOR B102 Home Pos. is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B102. • Trace the output signal through MSM BOARD A5. • Remove the damaged component and install a new component.
	Mechanical obstruction.	

B7 - MOVING MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
Time-out while moving the MAGAZINE SHUTTLE to the home slow-down SENSOR for calibration.	DRIVE MOTOR does not move: • No DC MOTOR voltage or voltage too low. Check voltage. • DRIVE MOTOR damaged. • MSM CONTROL BOARD.	
	SENSOR B101 Close to Home is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B101. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction.	

B8 - MOVING MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
DRIVE MOTOR runs in wrong direction.	DRIVE MOTOR wires are interchanged.	Check polarity of MOTOR CABLE.
	Software problem.	Press “CLEAR” to reset the MULTILOADER.

B9 - SOLENOID CONTROL

PROBLEM	CAUSE	ACTION
The SOLENOID detection has detected an overflow no SOLENOID is connected.	SOLENOID not connected or damaged.	• Check SOLENOIDS Y21-27 in component test. • Remove the damaged component and install a new component.
	SOLENOID DRIVER problem.	MSM CONTROL BOARD damaged.

BA - SOLENOID CONTROL

PROBLEM	CAUSE	ACTION
The SOLENOID calibration fails at power-up / reset. At least one of the MAGAZINE DRAWER SOLENOIDS Y21-27 is out of the rated value.	SOLENOID not connected or damaged.	• Do SOLENOID calibration request in component test to view calibration values and locate damaged SOLENOID. • Check SOLENOIDS Y21-27 in component test. • Remove the damaged component and install a new component.
	SOLENOID DRIVER problem.	MSM CONTROL BOARD damaged.

BB - SOLENOID CONTROL

PROBLEM	CAUSE	ACTION
The MAGAZINE SHUTTLE was unable to catch the selected DRAWER or lost a DRAWER while driving the it to the back position.	Mechanical obstruction.	• Check MAGAZINE DRAWERS for easy movement without obstruction. • Check catch armature.
	SOLENOID problem.	• Check SOLENOIDS Y21-27 in component test • Remove the damaged component and install a new component.

BC - MOVING MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
Time-out while pulling DRAWER to the back position.	DRIVE MOTOR does not move: • No or too low DC voltage. Check voltage. • DRIVE MOTOR damaged. • Motor DRIVER damaged - MSM CONTROL BOARD.	

PROBLEM	CAUSE	ACTION
	SENSOR B104 Back Pos. is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B104. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction.	

BD - OPEN / CLOSE MAGAZINE COVER

PROBLEM	CAUSE	ACTION
Time-out while opening MAGAZINE COVER.	OPENER MOTOR does not move: • No or too low DC voltage. Check voltage. • OPENER MOTOR damaged or foul wiring. • STEPPER MOTOR DRIVER damaged, MSM CONTROL BOARD.	
	SENSOR B106 MAGAZINE OPEN is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B106. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction. MAGAZINE not unlocked.	

BE - OPEN / CLOSE MAGAZINE COVER

PROBLEM	CAUSE	ACTION
Time-out while closing MAGAZINE COVER.	OPENER MOTOR does not move: • No or too low DC voltage, check voltage. • OPENER MOTOR damaged foul wiring. • STEPPER MOTOR DRIVER damaged, MSM CONTROL BOARD.	

PROBLEM	CAUSE	ACTION
	SENSOR B105 MAGAZINE CLOSED is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B105. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction.	

C0 - MAGAZINE LOCK MECHANISM

PROBLEM	CAUSE	ACTION
The MAGAZINE LOCK MECHANISM is unable to reach the release position during opening and closing the MAGAZINE.	No air pressure: • compressor problem • pneumatic system not airtight	
	SOLENOID valve Y20 damaged or jammed.	• Check SOLENOID in component test. • Install a new SOLENOID if necessary.
	SENSOR B108 MAGAZINE RELEASE is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B108. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction.	

C1 - MOVE MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
The SENSOR BOARD in Home Position of the SHUTTLE TRANSPORTER is not connected or is damaged during cycle.		• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B101 and B102. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.

C2 - MOVE MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
The SENSOR BOARD in back position of the SHUTTLE TRANSPORTER is not connected or is damaged during cycle.		• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B103 and B104. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.

C3 - MOVE MAGAZINE DRAWER

PROBLEM	CAUSE	ACTION
The SENSOR BOARD in home and back position of the SHUTTLE TRANSPORTER is not connected or is damaged during cycle.		Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B101 - B104. • Trace the output signal through MSM CONTROL BOARD. Remove the damaged component and install a new component.

C4 - OPEN / CLOSE MAGAZINE COVER

PROBLEM	CAUSE	ACTION
The SENSOR BOARD of the MAGAZINE OPENING MECHANISM is not connected or is damaged during cycle.		• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B105 and B106. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.

C8 - MAGAZINE LOCK MECHANISM

PROBLEM	CAUSE	ACTION
The MAGAZINE LOCK MECHANISM is unable to lock the MAGAZINE before opening it. MAGAZINE COVER is still closed.	No air pressure: • Compressor problem. • Pneumatic system not airtight. • Other SOLENOID still actuated by failure, Y3, Y1O, Y11.	
	SOLENOID valve Y20 damaged or jammed.	• Check SOLENOID in component test. • Install a new SOLENOID if necessary.

PROBLEM	CAUSE	ACTION
	SENSOR B108 MAGAZINE RELEASE is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B108. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction. MAGAZINE not in far enough in back position.	
	Pneumatic cylinder jammed.	

C9 - MAGAZINE LOCK MECHANISM

PROBLEM	CAUSE	ACTION
The MAGAZINE LOCK MECHANISM is not in release position before opening/ closing MAGAZINE.	No air pressure: • Compressor problem. • Pneumatic system not airtight. • Other SOLENOID still actuated by failure, Y3, Y10, Y11.	
	SOLENOID valve Y20 damaged or jammed.	• Check SOLENOID in component test. • Install a new SOLENOID if necessary.
	SENSOR B108 MAGAZINE RELEASE is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B108. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction. MAGAZINE not in far enough in back position.	
	Pneumatic cylinder jammed.	

CA - FRONT DOOR CONTROL

PROBLEM	CAUSE	ACTION
Communication problem between MSM and MAGAZINE UNIT after pressing FRONT DOOR BUTTON.		Press “CLEAR” to reset MULTILOADER

CB - MAGAZINE LOCK MECHANISM

PROBLEM	CAUSE	ACTION
The MAGAZINE LOCK MECHANISM is unable to lock the MAGAZINE again after opening it. MAGAZINE cover is not closed.	No air pressure: • Compressor problem. • Pneumatic system not airtight. • Other SOLENOID still actuated by failure, Y3, Y10, Y11.	
	SOLENOID valve Y20 damaged or jammed.	• Check SOLENOID in component test. • Install a new SOLENOID if damaged.
	SENSOR B108 MAGAZINE RELEASE is damaged.	• Enter the SERVICE MODE. • Start the SENSOR TEST. • Manually actuate SENSOR B108. • Trace the output signal through MSM CONTROL BOARD. • Remove the damaged component and install a new component.
	Mechanical obstruction MAGAZINE not in far enough in back position.	
	Pneumatic cylinder jammed.	

D0 - INTERNAL ERRORS OF MSM

PROBLEM	CAUSE	ACTION
The MAGAZINE Unit received a wrong ID number from the MSM.	A software problem occurred.	Press “CLEAR” and start again.

D2 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
A software problem occurred. Job does not exist.		Press “CLEAR” and start again.

D3 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D4 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
After Power On / Reset: no ID received from MSM UNIT but expected.	Software problem.	Press “CLEAR” and start again.
	Power Fail at MSM CONTROL BOARD.	Check all voltages MSM CONTROL BOARD.

PROBLEM	CAUSE	ACTION
	No OPERATING SOFTWARE on MSM CONTROL BOARD.	Do a MSM UNIT software download.
	RS232 INTERFACE between BOARD A4 and MSM CONTROL BOARD does not work.	• Check if CABLE is plugged in correctly. • Check if CABLE is damaged. • BOARD A4 might be damaged. • MSM CONTROL BOARD might be damaged.

D5 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

D9 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
The OPERATING software is not loaded completely.		Reload a complete MSM UNIT OPERATING SOFTWARE with the LAPTOP.

DB - INTERNAL ERRORS OF MSM UNIT

PROBLEM	CAUSE	ACTION
The software version of the MSM UNIT is not compatible with the software version of the MAGAZINE UNIT or SYSTEM UNIT.	The software is not loaded correctly.	Reload a compatible OPERATING SOFTWARE to the MULTILOADER.
	MSM Control Board is damaged.	Install a new BOARD if damaged and reload the OPERATING SOFTWARE.

DC - INTERNAL ERRORS OF MSM UNIT

PROBLEM	CAUSE	ACTION
A software communication error occurred.		Press “CLEAR” and start again.

F1 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
Communication problem. RS232 signal DSR not ready on time.	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged.	
	Software problem.	Press “CLEAR” to reset MULTILOADER.

F2 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

F3 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
Communication error: No response from MSM but expected.	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD.	

F4 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	If persistent only hardware problem. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD.	

F5 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem. No response from UNIT but expected.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged.	

F6 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged. Low voltage for RS232 INTERFACE DRIVER MOTORS.	

F7 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged.	

F9 - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
A software problem occurred.		Press “CLEAR” and start again.

FD - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged.	

FE - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
This is a hardware/software communication problem.	Software problem.	Press “CLEAR” and start again.
	Hardware problem. The following BOARDS could be damaged: BOARD A4 MSM CONTROL BOARD. The RS232 CABLE between the MASTER PROCESSOR A1 and the MAGAZINE INTERFACE BOARD could be damaged.	

FF - INTERNAL ERRORS OF MSM Unit

PROBLEM	CAUSE	ACTION
CES set the MULTILOADER to the inoperative mode.		

Exception Messages and Error Codes

In addition to error messages, the MULTILOADER 7000 displays exception messages and error codes. These messages are divided into four groups: software errors, hardware errors, software version errors and software update errors. These exception messages and error codes display on the OPERATOR DISPLAY, and are not listed in the “SERVICE SOFTWARE”.

Software Errors

These error codes and exception messages display when the software malfunctions.

Error Code	Exception Message	Action
ex0	unknown exception	De-energize and then energize the MULTILOADER 7000. If the error occurs again, use the LAPTOP COMPUTER to load the OPERATING SOFTWARE again.
ex1	base-task not available	
ex2	cassette-task not available	
ex3	magazine-task not available	
ex4	interface-task not available	
ex5	processor-task not available	
ex6	debug-task not available	
ex10	base mailbox communication error	
ex11	cassette mailbox communication error	
ex12	magazine mailbox communication error	
ex13	interface mailbox communication error	
ex14	processor mailbox communication error	
ex19	error does not exist	

Hardware Errors

These error codes and exception messages display when the software malfunctions on the MAIN PROCESSOR BOARD A1.

Error Code	Exception Message	Action
ex20	static RAM test failed	De-energize and then energize the MULTILOADER 7000. If the error occurs again, use the LAPTOP COMPUTER to load the OPERATING SOFTWARE again.
ex21	back-up RAM test failed	
ex22	USART test failed	
ex23	I/O test failed	
ex24	incorrect EPROM checksum	
ex27	watch-dog test failed	
ex28	display test failed	
ex29	RS232 test failed	
ex30	keypad test failed	
ex31	real-time-clock chip failed	

Software Version Errors

These error codes and exception messages display when the software malfunctions during start up.

Error Code	Exception Message	Action
ex40	incompatible software version	De-energize and then energize the MULTILOADER 7000. If the error occurs again, use the LAPTOP COMPUTER to load the OPERATING SOFTWARE again.
ex41	operating software not available	

Software Update Errors

These error codes and exception messages display when the LAPTOP COMPUTER or the connection malfunctions during the loading of the software.

Error Code	Exception Message	Action
ex42	communication error	Check the connections, and use the LAPTOP COMPUTER to load the OPERATING SOFTWARE again.

Section 3: LEDs

Status Codes on the MAIN PROCESSOR BOARD A1

- LED DS1 - red
  - This LED illuminates when V CC is available
- LED DS2 - green
  - This LED illuminates during the idle state and during a cycle
  - This LED does not illuminate when only the bootstrap software is running

Status Codes on the INTERFACE BOARDS

When the MULTILOADER 7000 fails to transmit an error message, the CASSETTE, MAGAZINE and MSM CONTROLLERS display an error code through the blinking of an LED. The red STATUS LED on the following BOARDS blink to display the error codes:

- MAGAZINE INTERFACE BOARD A4
- CASSETTE INTERFACE BOARD A8
- MAGAZINE SHUTTLE MECHANISM BOARD A20

When the red STATUS LED is illuminated, the status is normal. A variation in the illumination of the LEDs indicates a malfunction:

- **Red LED not illuminated.** This occurs after the MULTILOADER 7000 first energizes, and a RAM-test failure occurs or the bootstrap software is damaged.
- **Red LED is blinking continuously.** Only the bootstrap software is running. This occurs during software load from the LAPTOP COMPUTER.
- **Red LED displays a rhythmic blinking.** This is a fatal error.

If the STATUS LED is blinking or not illuminated, press the “CLEAR” SOFT SWITCH below the OPERATOR DISPLAY. If the error displays again, do:

a. De-energize and then energize the MULTILOADER 7000.

b. Check for correct voltage readings at all TEST POINTS on the BOARD where the LED is blinking.

c. Load the OPERATING SOFTWARE again.

Publication History

Publication Date	Publication No.	Changed Pages	File Name	Notes
16FEB01	3H9266	All	dg3444_1_16feb01.fm	First Printing
31OCT01	3H9266	All	3h9266.fm	Revised

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Printed in U.S.A. • 3h9266.fm

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